Canvas 2.0™

Upgrade Manual

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Manual written by Douglas D. Levy.
Special thanks to Steven L. Krischer and David Shear.

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Welcome to the future of computer graphics... welcome to Canvas™ 2.0. Canvas 2.0 has been significantly improved thanks to the suggestions and experiences of dedicated Canvas users like you. With Canvas 2.0, you will find that you can still do everything that earlier versions of the program allowed, but now you can do many of these same tasks much easier and faster. Plus, Canvas 2.0 has added many new features that were not present in prior versions. Even the *Canvas Window* has been significantly enhanced to facilitate your graphic compositions. Before you begin working with Canvas 2.0, please continue to read the ***Introduction*** to learn:

- what your Canvas 2.0 package includes
- how to use this manual
- what's new and improved with the program
- installation procedures

What's Included In The Upgrade Package

Here's what the Canvas 2.0 package includes:

- Canvas 2.0 Program disk
- Canvas 2.0 Desk Accessory disk
- Canvas 2.0 Upgrade Manual

If you package is missing any of the above, contact Deneba Software immediately at 1-800-6CANVAS, in Florida call 1-305-594-6965.

How To Use This Manual

The Canvas 2.0 *Upgrade Manual* is your encyclopedia of the program. You will find detailed descriptions of every Menu, Command and Tool used in Canvas 2.0. The *Upgrade Manual* is systematically organized by area: the *Canvas Window*, the *Tool Box* and the *Menu Bar*. There is also a detailed *Index* to assist you in quickly locating a particular subject.

What's New In Canvas 2.0

Read on to preview the new and enhanced features of Canvas 2.0 - where the future of computer graphics is a reality.

Unlimited Number of User Defined Layers

Technical illustrators, Architects and Engineers will benefit greatly from this capability. For example: an architect can draw the foundation, walls, roof, plumbing and electrical wiring in separate layers. He can then view or print them together or just selected layers at a time. In Canvas, layers can be re-ordered, grayed, made invisible or a color override can be applied.

Color QuickDraw on a Macintosh II

Canvas 2.0 fully supports the capabilities of Color QuickDraw on a Macintosh II. Objects, bitmaps and individual characters of text can be assigned separate Foreground and Background colors using the Apple Color Picker. These can be printed to any Macintosh compatible color printer including color slide printers.

Faster Drawing and Editing

Significant improvements have been made to an already fast drawing program. All unnecessary drawing to the screen has been eliminated. Extensive use of video buffering has been introduced to speed scrolling and smooth the movement of objects. Yet at the same time, users can see hidden objects as they are drawn. This feedback is invaluable when working in large drawings with many superimposed small objects.

Enhanced Draw Precision

One of QuickDraw's great weaknesses when compared to other graphics environments like Display PostScript is its limited precision when positioning and sizing objects. Canvas 2.0 works around this limitation and allows precise positioning of text, objects and bitmaps to 1/64,000th of an inch. The new version also takes more direct control of printers and exploits any added resolution whenever possible. As an example: the LaserWriter's resolution of 1/300th of an inch can now be utilized, hairlines (1/300th of an inch) can be positioned on the screen, and printed, one hairline apart.

Enhanced Print Capabilities

New capabilities have been added to improve printing. Users can define the printing order of multiple page drawings as well as control the overlap between pages. This overlap is helpful when reconstructing large drawings from many separate pages or tiles. Spooling to the ImageWriter can now be selected by the user.

Improved Text Handling

Text handling has been greatly improved. The bounding rectangles around text objects hug the text precisely. Overlapping text blocks can be selected by clicking on the actual text itself. RGB colors can be assigned to individual characters just like you select the font, size and style in the current version. Text blocks can be stretched to achieve special effects up to now only possible with PostScript specific drawing programs.

Multi-point Bezier Curves

Bezier curves can now contain an unlimited number of control points. This eases the task of tracing over scanned images or across layers. Anyone familiar with Adobe Illustrator™ will feel comfortable with this new feature. Bezier curves can also be exported to other programs without losses in accuracy.

Improved Import/Export

Considerable attention has been given to improving Canvas' importing and exporting capabilities. Canvas 2.0 now reads (imports) Canvas 1.02, Canvas 2.0, PICT, PICT2, MacPaint, MacDraw and TIFF (including IBM format) files directly. Canvas 2.0 writes (exports) in Canvas 2.0, MacPaint, TIFF, PICT and PICT2 formats. Particular emphasis has been placed on compatibility with all word processors, page layout programs and other graphics programs currently available.

New Object Pasting and Positioning Control

Canvas 2.0 includes many new commands designed to aid the user in placing and moving objects precisely. A new object type known as the "Picture Object" has been added.

Picture objects allow you to import, through the clipboard, images from a wide variety of graphics programs including ImageStudio™, PixelPaint™, Masterpiece™ and others. This new object type allows you to import graphics created using color paint programs like PixelPaint and Masterpiece through the clipboard. On a Macintosh II pictures will be displayed in full color.

Powerful Rulers and Grids

The zero point of the Canvas ruler can now be moved anywhere in both the horizontal and vertical directions, this is of course, in addition to the existing "Peel-Away Rulers." Guide lines can also be called upon to help in aligning objects. Points, Picas and Engineering units have been added, as well as the ability for the user to define his own scale and unit of measurement.

Independent User-defined Snap to Grid Settings

Canvas is the only program that allows the user to define the resolution of the grid system independent of the current ruler, with independent snap to X or Y axis.

Drawing Views

Views of different parts of a document at different magnifications can now be saved for easy reference. This feature can improve user productivity when working with large drawings. Views can be added, deleted and named easily. Any number of views can be saved with every drawing.

New Types of Objects

As previously mentioned Canvas 2.0 allows several new types of objects including Picture objects, Gray Level TIFF objects (like those output by ImageStudio or gray level scanners), and full color pixel maps like those in PixelPaint.

Arrowheads, Auto-Dimensioning and Area Calculations

Canvas 2.0 features 6 different types of arrowheads and line terminators. This enhances the product's drafting and engineering drawing capabilities to rival those of many dedicated CAD programs. Dimensioning can be specified

to be displayed on either lines or arcs, with the arcs indicating their angles.

Enhanced Duplication And Positioning Options

The exclusive object duplicating options of Canvas have been enhanced even further with the addition of starting and ending RGB colors, gray level percentages and patterns as well as gradients. Text is now resized to match specified reduction and enlargement percentages.

Improved Bitmap Editing

Even though many of the new features found in Canvas 2.0 relate to object oriented functions, great enhancements have been made to all bitmap editing tools as well. Bitmap tools are even faster and more responsive than before. A "one to one" view is now available while editing bitmaps of any resolution. Trace edges has been added. The spray can tool now supports random flow patterns and variable flow rate control while drawing. The size of the nozzle can also be controlled while drawing. The Nozzle size is no longer limited to 16x16 pixels. Facilities have been provided for third party developers to program custom bitmap editing tools. Bitmaps of any resolution can now be saved as either MacPaint or TIFF files.

Custom Hairlines and Gray Scales

In addition for supporting patterns and colors, Canvas 2.0 allows users to fill or stroke any object with a true PostScript gray screen. Gray's can be specified in 1% increments. Hairlines of any thickness are also supported. Up to six different custom sizes can be programmed into the menu for easy access.

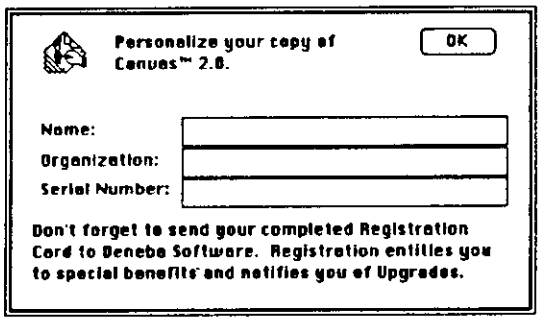
Installation Procedures

Before you begin, your license agreement permits you to make one working copy of the Program and Desk Accessory Disks. Once you have done this, store your Master Disks in a safe place.

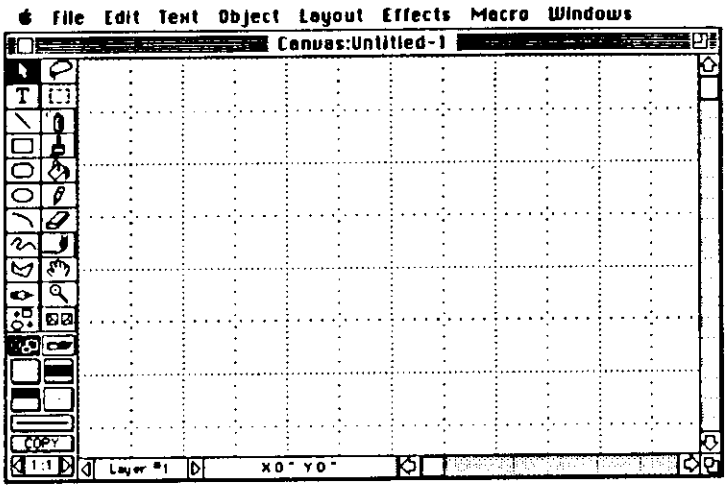
Canvas 2.0 Program

If you need help making a backup copy, refer to your Macintosh *User's Guide* for instructions. If you are using a two floppy drive system, make sure that you copy the *Canvas Prefs* file into the System folder of your boot disk. If you are using a hard disk, make sure that you copy the Canvas program to a folder on your hard drive and that the *Canvas Prefs* file is in the active System folder.

1. **Turn on your Macintosh.** If you are using a hard drive with System 6.0, locate the Canvas program and proceed to Step 4.
2. **Insert the working copy of your System 6.0 system disk in a disk drive.** If you are using a version of the system prior to the 6.0 release, contact you local Macintosh dealer or User Group for a copy of the latest System release.
3. **Insert the working copy of your Canvas *Program disk* in another disk drive.**
4. **Click on the icon of the Canvas 2.0 disk, and choose *Open* from the *File* menu.** The first time you start the program, a dialog appears asking you to personalize your copy of Canvas.


Personalize your copy of Canvas™ 2.0.
OK
Name:
Organization:
Serial Number:
Don't forget to send your completed Registration Card to Deneba Software. Registration entitles you to special benefits and notifies you of Upgrades.

5. **Enter your name, organization, if any, and the *last five digits* of the *Serial Number* (from the white sticker on your *Program Master Disk*) and click *OK*.** The Canvas program startup screen appears, followed by the program's desktop (known as the *Canvas Window*), which looks like this.



Canvas 2.0 Desk Accessory

To install Canvas DA, use the Font/DA Mover program included on the Canvas DA disk. If you are not familiar with the operation of the Font/DA Mover program, consult your Macintosh *Users' Guide* for step-by-step instructions.

If you have already copied the *Canvas Prefs* file, from the Canvas 2.0 Program disk, into your System folder, there is no need to recopy this file. Once you have installed the desk accessory, the first time that you open Canvas DA from the Menu, you will be asked to personalize your copy of the program. Follow the procedures outlined in step 4 of the previous page.

USER TIP *CANVAS AND CANVAS DA WILL NOT RUN IF THEY DO NOT FIND THE CANVAS PREFS FILE IN THE ACTIVE SYSTEM FOLDER.*

2	*About the Canvas Window*
3	*The Canvas Menu Bar*
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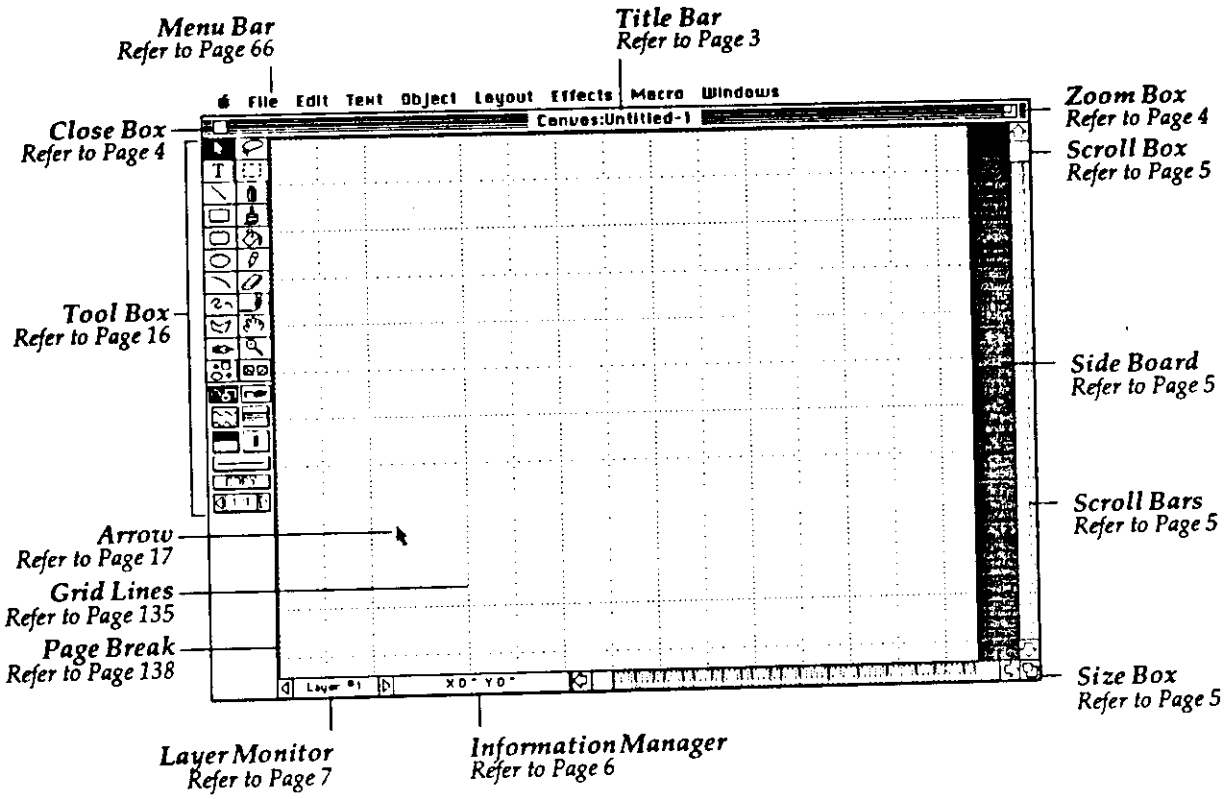
About the Canvas Window

The *Canvas Window* is your electronic illustration board and drafting table combined into a unique and feature-laden window. It contains the drawing area where you will create your illustration with all of the necessary tools and commands at you fingertips.



This section describes the features of the *Canvas Window*. Specific information about the individual *Tool Box* and *Menu Bar* commands and options are discussed in later sections.

When you start Canvas, the *Canvas Window* is displayed. It is like any other standard Macintosh window: it can be moved, re-sized, zoomed, closed and scrolled. You can open any number of windows, up to the memory capacity of your computer.

All drawing and painting takes place within the illustration area, the electronic grid. When you first open Canvas, the document is set to be 8 inches by 10 inches. However, your illustration can be much larger than your Macintosh screen - up to 9 feet by 9 feet. Canvas allows you to quickly move around your illustration with different views, while simultaneously providing magnification levels to define details and reduction levels to preview the entire document.

The Canvas Menu Bar

Stretching across the top of your screen is the ***Canvas Menu Bar***. Standard Macintosh and special Canvas pull-down menus are located here and are discussed in detail beginning on page 65.

Title Bar

The ***Title Bar*** is located under the ***Canvas Menu Bar***. It displays the *type of document* you are working on, followed by the *name of the document*.

Canvas can open documents which have been saved in the following formats:

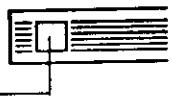
- Canvas
- Stationery Pad (*Canvas Prefs*)
- MacPaint and MacDraw
- PICT, or PICT2
- TIFF

Therefore, anytime you are working on an illustration that was originally saved by another program, you need only refer to the ***Title Bar*** to reference the type of document you are working with. Following the *file type* is the *name of your document*. A new illustration is automatically named *"Untitled 1"*. After you name and save an illustration, it's name will appear in place of *"Untitled 1"*. Canvas puts the *"1"* after *"Untitled"* since you can open multiple new documents up to the memory capacity of your computer. It will automatically name any additional new illustrations *"Untitled 2"*, *"Untitled 3"*, etc.

As with any standard Macintosh window, the *Canvas Window* contains the *Close, Zoom,* and *Size Boxes,* and the *Scroll Bars* and *Scroll Box.*

Close Box

The ***Close Box*** is located in the left corner of the ***Title Bar.*** If you click the mouse in the ***Close Box,*** you will put away (*close*) the illustration in the *Canvas Window.* However, before closing the document, if you have not saved your illustration on disk, Canvas will ask you if you want to save it. (*Refer to page 73 for information on Saving.*)



Close Box

Zoom Box

The ***Zoom Box*** will change the dimensions of the *Canvas Window.* To use the ***Zoom Box,*** located in the right corner of the ***Title Bar,*** simply click the mouse in its box to quickly enlarge the illustration to the maximum size available for your particular screen; click again to return the *Canvas Window* to its original size.

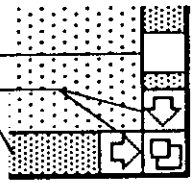
Zoom Box

Size Box

Located in the lower right corner of the *Canvas Window*, the *Size Box* will change the size of the window by dragging the mouse. You drag the *Size Box* to change the size of the *Canvas Window* to any size that fits your screen.

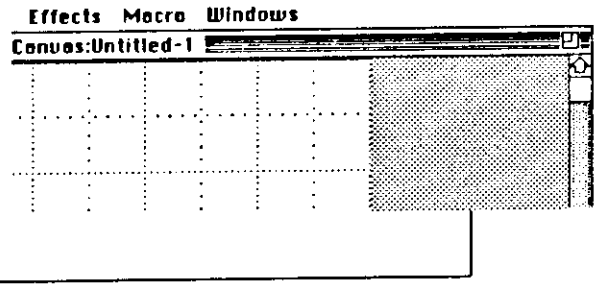
Scroll Bars

The *Scroll Bars, Boxes* and *Arrows* are along both the right side and bottom of the *Canvas Window*. Use them for vertical and horizontal movement around your illustration. You can use the *Scroll Arrows* to scroll continuously, click within the *Scroll Bars* to move by the windowful or drag the *Scroll Boxes* to immediately move to an approximate location in your illustration.



Sideboard

The *Canvas Window* contains a gray shaded area surrounding the right and bottom sides of the drawing area called the *Sideboard*. This is your *"work bench."* You can move objects out of the *Canvas Window* and place them on the *Sideboard* until you need them.



You can also create objects in the *Sideboard* first, and then move them into your illustration. Objects in the *Sideboard* are saved with the document, but are not printed. The *Sideboard* is always larger than the drawing size specified by the *Drawing Size...* option in the *Layout Menu.*

Information Manager

The *Information Manager* is located on the left side of the *Horizontal Scroll Bar*, when the *Show Info Manager* option in the *Layout* menu is active (*the default setting in the Canvas Prefs file, page 8*).

The *Information Manager* displays various types of data, referred to as *Auto-Dimensioning* data, depending upon the action you are taking. The *Information Manager* is useful for accurately measuring, sizing and positioning objects as you work on an illustration in the *Canvas Window*. The numbers that are displayed in the *Information Manager* appear in the measurement system of the rulers. (*Refer to page 122 for information about the Canvas Rulers*).

The meaning of the measurements in the *Information Manager* vary depending upon the action you take: when you move the *Arrow* cursor around the *Canvas Window*, the *Arrow's* horizontal and vertical distance from the ruler's zero point is displayed; when you draw, select or re-size a line, the horizontal and vertical distances traveled, the angle at which the line was drawn from, its starting point and the length of the line are shown. When you draw or select a rectangle, rounded-corner rectangle or oval, the *Information Manager* displays the height and width of the object's *bounding rectangle*. When you draw or select an arc, it displays the height and width of the arc's

bounding rectangle and the angle of the arc; when you re-shape an arc, it displays the increase, or decrease in the angle of the arc. Drawing a polygon, it displays the horizontal and vertical distances traveled, the angle at which the *path* (line segment) was drawn from its *anchor point* (starting point). Selecting a polygon will display the height and width of the object's *bounding rectangle;* while re-shaping a polygon (*using the* ***Edit Polygon*** *command in the* ***Object*** *menu*), only displays the ***Arrow's*** location in the *Canvas Window.*

The ***Information Manager*** displays the total height and width of the *bounding rectangle* for the entire group of objects, when you select or re-size a group of objects. When you rotate an object, it displays the degree of rotation; when you drag an object to a new position in the *Canvas Window,* the horizontal and vertical distances that the object has moved from its original position is displayed.

The information shown in the ***Information Manager*** is called ***Auto-Dimensioning*** data, and can be *attached* to the selected object. Refer to the ***Show/Hide Info Manager*** option in the ***Layout*** menu (*page 137*) for instructions on *attaching* data.

Layer Monitor

To the left of the ***Information Manager*** is the ***Layer Monitor***. Canvas permits an unlimited number of layers in an illustration. Layers are like sheets of cellophane, whenever they are stacked on top of each other, you can look through them to view the entire illustration. (*Refer to page 130 for more information.*)

Layer Scroll Arrows
Moves between layers one at a time

Layer Monitor Display
Displays the name of the active layer

Tool Box

Located along the left side of the *Canvas Window* is the *Tool Box*, which contains 31 tools to assist you in creating your documents. Specific information regarding the function of each tool begins on page 15.

The Canvas Prefs File

The *Canvas Prefs* document, located in the System folder, contains all of the active *default* settings for a new illustration in the *Canvas Window*. Every time that you choose *New* (⌘*N*) from the *File* menu, the settings in the *Canvas Prefs* file will be used to create the new untitled document. The *Canvas Prefs* file is known as a *Stationery Pad* file, a template for the *Canvas Window*. You can tell Canvas to save a document as a *Stationery Pad* file, using the *Save As...* command from the *File* menu, whenever you plan to reuse that document as a template for another. However, the original *Canvas Prefs* (*Stationery Pad*) file, located in your System Folder, remains unchanged and can be reused for other documents as often as you wish.

The *Canvas Prefs* file that is shipped with the program contains the *default settings* that are referenced in this manual. These *default settings* are:

File Menu:
New: document opens untitled with one layer
Page Setup:
Paper: US Letter
Orientation: Upright
Print:
Quality: Best
Page Range: All
Copies: 1
Paper Feed: Automatic
Preferences:
Drag Display: Outlines and Objects
Display Precision: 2 decimal places

File Menu (continued)
- Preferences:
  - Auto-Create Bitmaps: On
  - Double-Click: Bitmaps
  - Duplication Offsets: 10 pixels X and Y
- Arrow Key Options:
  - Command Key Movement: 10 pixels
  - Option Key Movement: 50 pixels
- Dimension Display: Fractions
- Rotation Coordinate System: 12 o'clock

Edit Menu:
- Duplications:
  - Number of Copies: 1
  - Copy Rotation: 0
  - Copy Offsets: .5" X and Y
  - Copy Resizing: 0%
- Brush Shapes: Small Round
- Fill Pattern: White
- Pen Pattern: Solid Black
- Spray Can Nozzle: Random Round
- Pen Shape: 1 point x 1 point
- Arrows: Off

Text Menu:
- Font: New York
- Size: 12 points
- Justification: Left
- Style: Plain Text

Object Menu:
- Objects:
  - Bitmap Resolution: 72 dpi
  - Fill Pattern: Solid Black
  - Pen Pattern: Solid Black
  - Background Color: White
  - Foreground Color: Black
  - Ink Mode: Copy
  - Pen Shape: 1 point x 1 point

Object Menu (continued)
- Scale:
  - Scaling expression: % of X and Y
  - Pen Scaling: Active

Layout Menu:
- Rulers: Not showing
- Ruler #: 1
- Displays: QuickDraw
- Grid Lines: Off
- Snap to Grid: Off
- Show Size Display: On
- Page Breaks: On
- Drawing Size: One Page
  - Horizontal Overlap: 0
  - Vertical Overlap: 0
  - Print Order: Horizontal
  - Spool Before Printing: On

Effects Menu:
- Rotation: 90
- Rotation Direction: Clockwise

Tool Box:
- Zoom Level: 1X

Stationery Pad Files

Canvas allows you to create *Stationery Pad* files, or templates, that automatically open with all of the customized settings and graphic elements that you commonly use in your documents. When you open a *Stationery Pad* files, you can start to work immediately, without changing the standard defaults in the *Canvas Prefs* file in the System folder.

To create a Canvas *Stationery Pad* file you choose *New* (⌘-*N*) from the *File* menu. Canvas will open a new document with the standard default settings of the *Canvas Prefs* file in the System folder. Now you can modify the

settings that you use often. You can customize the *Preferences* option from the *File* menu, set and show custom *Rulers*, change the *Pattern Palettes* and *Pen Shapes* and set your own *Views*, among many other settings you desire. When you are finished creating the *Stationery Pad* document, choose the *Save As...* command from the *File* menu. Type in the name of the *Stationery* document; click the mouse on the *Stationery Pad* button; click the *Save* button to save your document.

Whenever you want to use one of your *Stationery Pad* templates to work on a document that is set up with the graphics and pre-defined settings that you use often choose *Open*(⌘-O) from the *File* menu, click on the name of the *Stationery Pad* document and click on the *Open* button.

Arrow Keys

Canvas employs the keyboard *Arrow* keys for the precise movement of a selected object or group of objects, or a selected portion of a paint (*bitmap*) object. Press the Left, Right, Up or Down *Arrow* key to move a selection 1 pixel at a time. You can also hold down the *Command Key* (⌘) as you press an *Arrow* key to move 10 pixels at a time, or use the *Option* key to go 50 pixels at a time. When you want to edit a text object, the *Arrow* keys will move the text cursor up, down, left or right, to assist you in mouseless editing.

Command Keys

Besides using the keyboard *Arrow* keys, you can choose many commands from the keyboard, in lieu of using the pull-down menus. With these *Command Key* equivalents, you simply hold down the *Command Key* (⌘) and press a key on the keyboard to activate the command. For example, you can create a new Canvas document by pressing *Command-N* (⌘-N) from the keyboard instead of

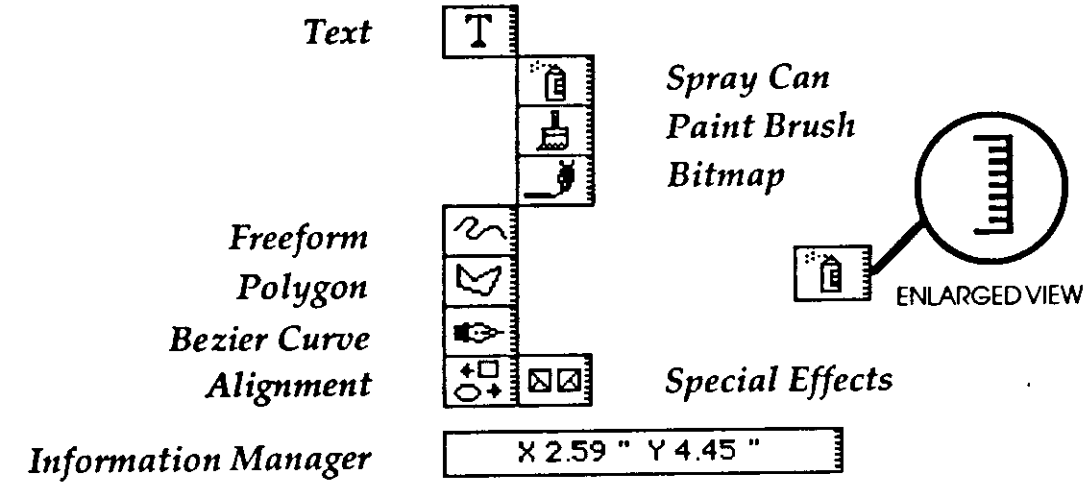
choosing *New* from the *File* menu. *Command Keys* are quick and efficient short cuts to unlocking the power of Canvas. *Command Keys* are listed in the menu selections to the right of the command.

File Menu	
New	*Command -N*
Open	*Command-O*
Save	*Command-S*
Print	*Command-P*
Quit	*Command-Q*
Edit Menu	
Undo	*Command-Z*
Cut	*Command-X*
Copy	*Command-C*
Paste	*Command-V*
Select All	*Command-A*
Duplicate	*Command-D*
Duplication...	*Command-W*
Text Menu	
Type...	*Command-T*
Plain Text	*Command-Shift-P*
Bold Text	*Command-Shift-B*
Underline Text	*Command-Shift-U*
Italics Text	*Command-Shift-I*
Reduce Font Size	*Command-Shift-<*
Increase Font Size	*Command-Shift->*
Object Menu	
Bring to Front	*Command-F*
Send to Back	*Command-J*
Shuffle Up	*Command-[*
Shuffle Down	*Command-]*
Object...	*Command-I*
Align...	*Command-Y*

Object Menu (continued)	
Group	*Command-G*
Ungroup	*Command-U*
Lock	*Command-L*
Edit Polygon	*Command-E*
Split/Bind Polygon	*Command-'*
Smooth/UnSmooth	*Command-~*
Effects Menu	
Rotate 90	*Command-R*
Layout Menu	
Wire Frame Display	*Command-1*
PostScript Display	*Command-2*
QuickDraw Display	*Command-3*
Hide All Layers	*Command-4*
Show All Layers	*Command-5*
Home View	*Command-Option-H*
Reduce to Fit	*Command-Option-R*
Switch to View #1	*Command-Option-1*
Switch to View #2	*Command-Option-2*
Switch to View #3	*Command-Option-3*
Switch to View #4	*Command-Option-4*
Switch to View #5	*Command-Option-5*
Switch to View #6	*Command-Option-6*
Switch to View #7	*Command-Option-7*
Switch to View #8	*Command-Option-8*
Switch to View #9	*Command-Option-9*
Switch to View #10	*Command-Option-0*
Macro Menu	
Add Macro	*Command-M*
Miscellaneous	
Screen Re-Draw	*Command-K*
Stop Screen Re-Draw	*Command-.*

Multiplex Keys

Canvas has also defined *Multiplex* icons which operate as multi-function command modifiers. Press either the *Command, Option, Shift* or *Control* keys and click the mouse on a particular tool in the Canvas *Tool Box* and you will automatically access additional hierarchical menus, thereby "*modifying*" the behavior of that tool. All *Multiplex* icons are depicted with *hashed* borders on the right side of their icon boxes. The *Multiplex* icons are:



Canvas Rescue Files

Generally speaking, you should *save often* and make *backup copies* of your important documents. If you change an illustration, then wish you had not done so, Canvas lets you return to the last saved version. Saving frequently assures you that your last-saved version has the most current changes. However, in the unlikely event of a System Error while using Canvas, the Macintosh "*System Error*" dialog will be displayed with a button labeled "*Resume.*" If you click on the "*Resume*" button, Canvas will save all active drawings into documents titled "*Canvas Rescue 1, Canvas Rescue 2, etc,*" and exit to the Finder. This will ensure no loss of valuable data under most circumstances.

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52 *Spray Can Tool*
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61 *Pen Pattern Manager*
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62 *Arrow Manager*
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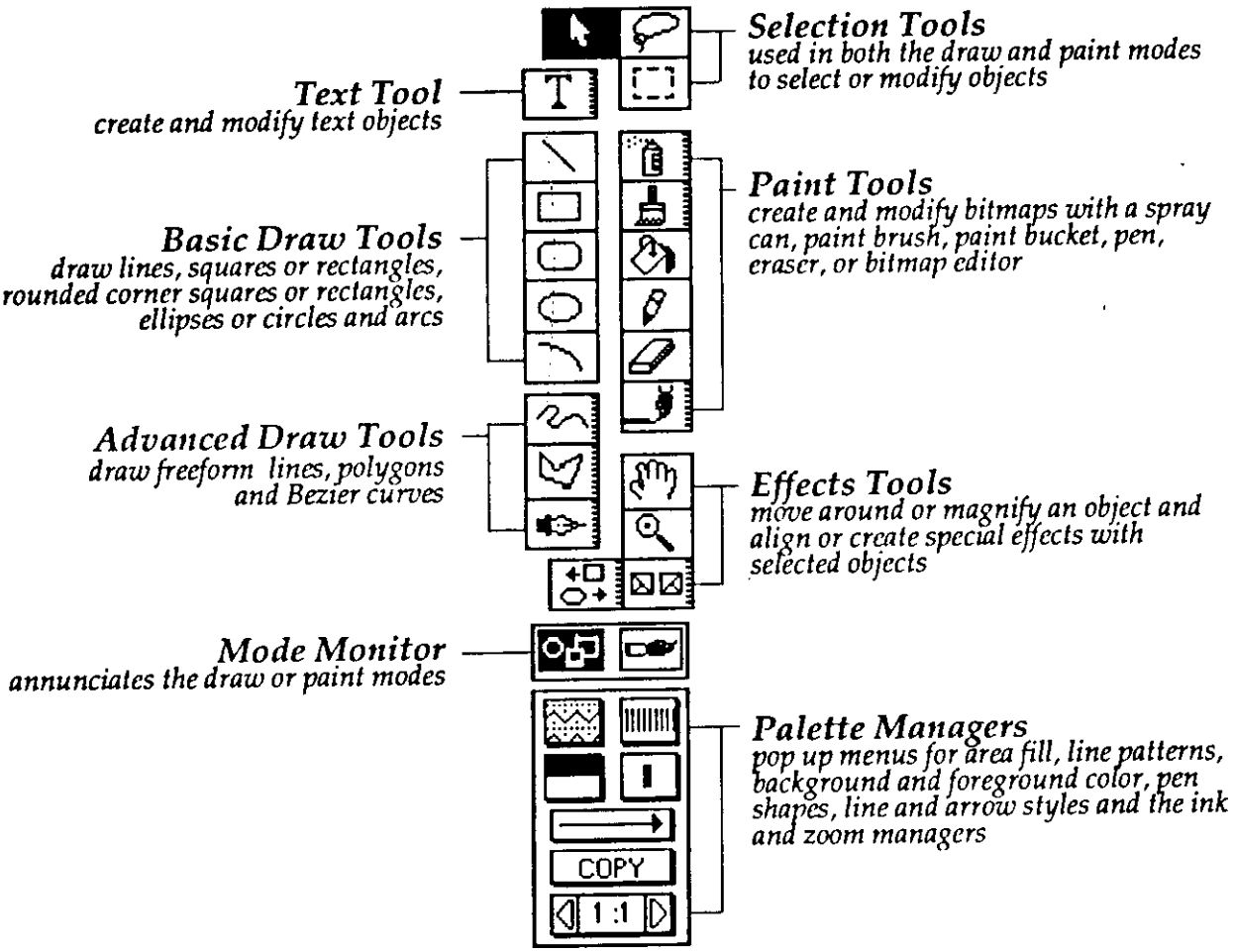
About the Tool Box

When you open Canvas to create a new graphic, or open an existing illustration, the ***Tool Box*** is displayed on the left of the *"Canvas Window."* The ***Tool Box*** contains 31 items which can be divided into eight categories, according to how they are used:


Selection Tools
used in both the draw and paint modes to select or modify objects
Text Tool
create and modify text objects
Paint Tools
create and modify bitmaps with a spray can, paint brush, paint bucket, pen, eraser, or bitmap editor
Basic Draw Tools
draw lines, squares or rectangles, rounded corner squares or rectangles, ellipses or circles and arcs
Advanced Draw Tools
draw freeform lines, polygons and Bezier curves
Effects Tools
move around or magnify an object and align or create special effects with selected objects
Mode Monitor
annunciates the draw or paint modes
Palette Managers
pop up menus for area fill, line patterns, background and foreground color, pen shapes, line and arrow styles and the ink and zoom managers
COPY
1 :1

About the Selection Tools

The Canvas ***Tool Box*** contains three *Selection Tools* for your use. They are the ***Arrow***, the ***Lasso*** and the ***Marquee***. As with most Macintosh programs, the Canvas *Selection Tools* permit you to select something so that the next command will affect only the selected item.

Many of the Canvas ***Tool Box*** and ***Menu*** commands only work on selected objects or areas within objects.

Draw Mode | **Paint Mode**
Paint Mode |

Objects created in the *draw mode* can only be selected with the ***Arrow*** cursor. While objects created in the *paint (bitmap) mode* can use the ***Arrow*** or ***Marquee*** cursors to select the entire object, or the ***Lasso*** or ***Marquee*** to work on a specific area of the bitmap. The description of each ***Tool Box*** or ***Menu*** command tells you which cursor(s) to use.

Arrow Tool

The ***Arrow*** cursor is used to pull down ***Menus***, select tools from the Canvas ***Tool Box***, and use the *Canvas Window* controls, scroll bars, icons and dialog boxes. In the *draw mode*, you use the ***Arrow*** cursor to select, move or change the size of objects you create. After you draw an object, Canvas will automatically revert to the ***Arrow*** cursor so that you can move and/or modify the object. (*Refer to the **Preferences** option in the **File** menu for information on retaining the selected tool after drawing, page 76.*)

Options Available With The Arrow

With the *Arrow* tool, you can:

- select one or more objects
- de-select one or more objects
- drag a selected object or group of objects
- drag the mouse to create a *Selection Rectangle*
- stretch an object or group of objects
- move an object to a new position with the keyboard *arrow* keys
- change the fill or line patterns of an object
- change an object's line width (*pen shape*)
- convert draw objects into paint (*bitmaps*) objects
- copy or cut objects into the Clipboard
- auto trace objects
- align objects with other selected objects
- delete objects
- duplicate objects
- lock or unlock objects
- rotate objects
- flip objects horizontally, vertically or both
- skew (*slant*) objects
- distort objects
- print a selected object or group of objects
- add 1 or 2 Point Perspective to objects
- change the way objects overlap other objects
- display an object's area, perimeter, width, height or rotation angle
- combine objects with another object or group of objects
- add arrowheads to lines or arcs
- re-shape a selected arc, freehand shape or polygon
- smooth or unsmooth a polygon
- convert an object into a *MacrObject*

Lasso Tool

The *Lasso* tool is used with paint (*bitmap*) objects to select areas of the object which may not always be rectangular. When you select the *Lasso* tool from the *Tool Box*, the cursor changes its shape to look like the *Lasso*. You can then use this tool to select a region of the bitmap in any arbitrary shape.

Selecting A Bitmap Area

To use the *Lasso* tool: select the *Lasso* tool from the *Tool Box;* move the cursor inside the bitmap area, to the starting point of the area to be selected. Press the mouse button down and drag the cursor around the desired area until you reach the area of the starting point. Release the mouse button. Canvas will automatically complete the boundary and will select the enclosed area (*excluding any white space*).

Options Available With The Lasso

When you have the bitmap area selected, you can:

- drag it to a new position. To move the selected area: place the cursor inside the moving outline of the selection (*the cursor changes to the Arrow tool*), then drag the selection wherever you want inside the bounding rectangle of the bitmap or move it to a new position with the keyboard *arrow* keys.
- copy or cut it into the Clipboard
- auto trace it
- fill or invert it
- add 1 or 2 point perspective
- delete it
- trace it's edges
- rotate it
- flip it horizontally, vertically or both
- skew (*slant*) or distort it

USER TIP *YOU CAN LIMIT YOUR DRAG TO HORIZONTAL OR VERTICAL MOVEMENTS BY HOLDING DOWN ON THE SHIFT KEY AS YOU DRAG THE MOUSE.*

USER TIP *If you hold the Option key down while dragging the mouse, you will drag a copy of the selection while the original remains in place.*

USER TIP *Holding both the ⌘ and Option keys down while dragging, causes the dragged selection to leave a trail of multiple copies.*

USER TIP *Holding the Option key down while using the Lasso tool, selects the entire area, including white space.*

USER TIP *Double-clicking the Lasso tool on a selected solid color area of a bitmap will automatically select all pixels in that area of the bitmap.*

De-Selecting A Bitmap Area

You can *de-select* the lassoed area by:

- clicking the mouse outside of the area
- clicking on another object
- selecting another tool from the ***Tool Box***

Marquee Tool

The *Marquee* tool will highlight rectangular areas of paint (*bitmap*) objects to work on. When you select the *Marquee* tool from the ***Tool Box***, the cursor changes its shape to look like the *Marquee*. You can then use this tool to select a region of the bitmap in any rectangular shape.

Selecting A Bitmap Area

To use the *Marquee* tool: select the *Marquee* tool from the ***Tool Box***, then move the cursor to a corner of the area to be selected. Press the mouse button down and drag the cursor across the area, then release the mouse button. Canvas will automatically select the enclosed area (*including any white space*).

Options Available With The Marquee

When you have the area selected, you can:

- drag it to a new position.
- copy or cut it into the Clipboard
- auto trace it
- fill or invert it
- add 1Pt or 2Pt perspective
- delete it
- rotate it
- flip it horizontally, vertically or both
- skew (*slant*) or distort it

USER TIP *You can limit your drag to horizontal or vertical movements by holding down on the Shift key as you drag the mouse.*

USER TIP *If you hold the Option key down while dragging the mouse, you will drag a copy of the selection while the original remains in place.*

USER TIP *Holding both the ⌘ and Option keys down while dragging, causes the dragged selection to leave a trail of multiple copies.*

USER TIP *Holding the ⌘ key down while using the Marquee tool, snaps the Marquee tight to the object.*

USER TIP *Double clicking on the Marquee tool, when in the Paint Mode, will select the entire bitmap.*

De-Selecting A Bitmap Area

You can *de-select* a marqueed area by:

- clicking the mouse outside of the area
- clicking on another object
- selecting another tool from the ***Tool Box***

About the Text Tool

The Canvas ***Text*** tool is used to create titles in an illustration, captions or labels for parts of an illustration, or to add entire paragraphs of text. In the draw (*object*) mode, after you create text, Canvas treats the text as an object that you can manipulate like any other line or shape object. When you are working with a paint (*bitmap*) object, you must make all changes to your text before you click the mouse outside the boundaries of the text you just created. Once you click outside the text object, Canvas, in effect, *"pastes"* the text into the paint object, combining it into the bitmap.

Text Tool

With the ***Text*** tool selected the cursor changes to when it is inside the *Canvas Window*. You can create text two ways: 1) you can click anywhere in an illustration and type captions, titles or labels; or, 2) you click in the illustration and then drag the cursor to set margins for typing paragraphs of text. Text objects can be rotated, grouped, flipped, distorted, or skewed. Font types, sizes and styles and colors can be mixed, letter by letter, within a text block. You can edit text by cutting, copying or pasting it just as you would edit text in other Macintosh applications.

Multiplex Options

The ***Text*** tool icon is a multi-function *"Multiplex"* icon. That is, by holding down either the ⌘, *Option*, or *Shift* key as you press down and hold the mouse button on the ***Text*** tool icon, you automatically access a hierarchical menu from which you can make a selection to modify the default text settings. You can also *double-click* on the ***Text*** tool icon to display the *Type Manager* dialog.

About the Basic Draw Tools

Canvas gives you the five basic drawing tools to create objects in you illustration:

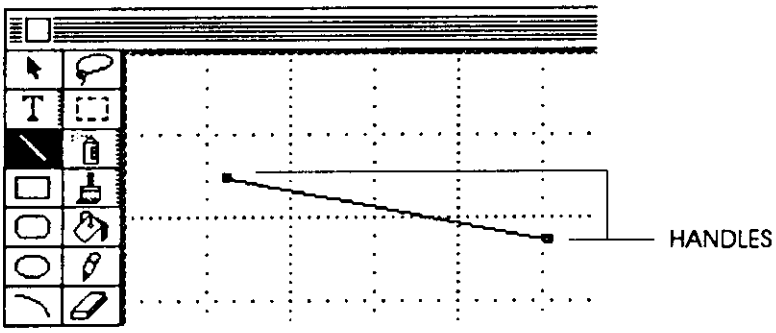
- ***Line*** - draws straight lines
- ***Rectangle*** - draws rectangles and squares with square corners
- ***Rounded-Corner Rectangle*** - Draws rectangles and squares with rounded corners
- ***Oval*** - draws circles and ovals
- ***Arc*** - draws curved lines

Unlike painted lines and shapes, objects created in the *draw mode* are *"individual entities,"* not just a collection of *"dots."* Canvas stores the information about a draw object as mathematical information (*vector objects*). Objects created in the *draw mode* will usually print much better than they appear on the screen. The reason for this is that the Macintosh screen has a resolution of 72 dpi (*dots per inch*), while print devices, such as the LaserWriter, have a resolution of 300 dpi (*dots per inch*). Canvas automatically takes the mathematical (*vector object*) information that defines the object and converts it into an image with as many *dots per inch* as the printer can produce.

Line Tool

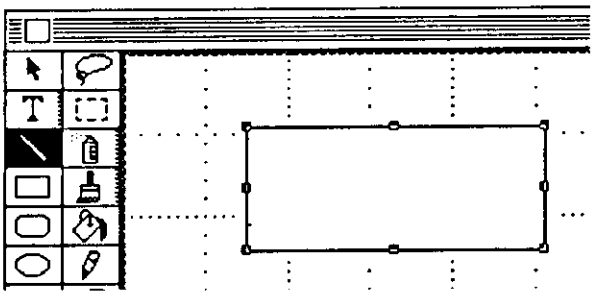
With the ***Line*** tool you can draw horizontal, vertical or diagonal straight lines. To draw a line: click the mouse on the ***Line*** tool in the ***Tool Box***, then position the pointer in the *Canvas Window*. When you position the pointer in the *Canvas Window*, it becomes a *crosshair* "+" to show you the exact spot where the line will begin. Then, press the mouse button and drag it in the direction that you want the line to go. As long as you hold the mouse button down, you

can lengthen or shorten the line and change its angle of slope. When you have finished drawing the line, release the mouse button. The line will appear selected with *handles* on both ends. You can reposition the line by dragging it. In addition, you can change the line's length or angle by dragging a handle.



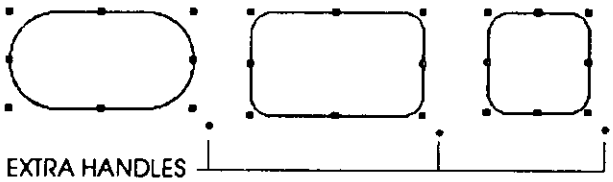
Rectangle Tool

The *Rectangle* tool draws rectangles and squares. To draw a rectangle: click the mouse on the *Rectangle* tool in the *Tool Box*. Position the pointer in the *Canvas Window*. When you position the pointer in the *Canvas Window*, it becomes a *crosshair* "+" to show you the exact spot where the rectangle will begin. Then, press the mouse button and drag it in the direction that you want the rectangle to go. As long as you hold the mouse button down, you can stretch or shrink the rectangle. When you have finished drawing the rectangle, release the mouse button. The rectangle will appear selected with *handles* around its boundary.



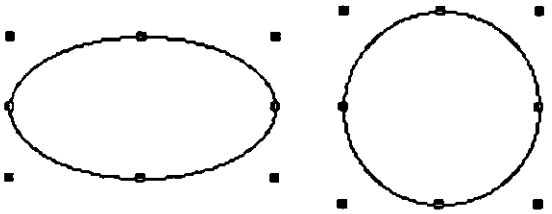
Rounded-Corner Rectangle

The *Rounded-Corner Rectangle* lets you draw rectangles and squares with rounded corners. You draw rounded corner rectangles the same way you draw rectangles. Rounded corner rectangles display an extra handle. By pulling or pushing on this circular handle you can change the roundness of the corners of the rectangle. You can also change the shape of the roundness of the corners by choosing *Object...* (⌘-I) from the *Object* menu.



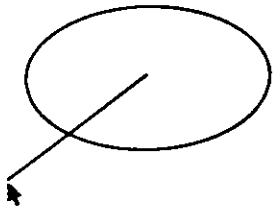
Oval Tool

The *Oval* tool lets you draw ovals or circles. You draw ovals and circles the same way you draw rectangles. To draw an oval, select the *Oval* tool and position the pointer in the drawing window, press the mouse button and drag to the desired position. When the oval is of the desired shape and size, release the mouse button. Handles appear around the oval to indicate it is selected. You can change the shape of the roundness of the oval by dragging on one of the handles or choosing *Object...* (⌘-I) from the *Object* menu.

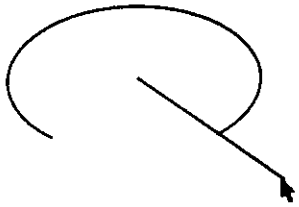


Canvas gives you the power to easily convert an oval or circle into an arc. This is extremely useful in creating standard or "exploded" pie charts.

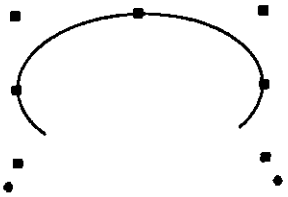
To *"open"* an oval or circle follow the procedures described for creating an oval or a circle. Then, with the oval or circle selected (*handles visible*), press down and hold the ⌘ key, and select the *Arc* tool. A dot will appear in the center of the oval. By moving the pointer into the *Canvas Window*, a *line* will extend from the center of your oval.



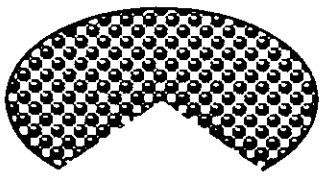
Position the *line* at the point where you want to *"open"* the oval or circle and press down and hold the mouse button. The oval or circle will disappear as you, drag the *line* around to the end point. The direction of the mouse determines the *enclosed area*. When you are satisfied with the *"opening,"*



release the mouse button.

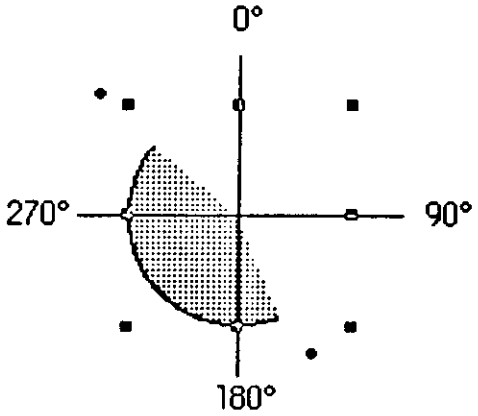


You will notice *two additional round handles*. Use these handles to adjust your *"opening."* With this object selected you can fill it, change its color, or apply any of the standard Macintosh commands or Canvas special effects commands.



Arc Tool

The *Arc* tool draws a curved line between two points. To draw an arc click on the *Arc* tool in the ***Tool Box***. Position the pointer inside the *Canvas Window* where you want the arc to begin. Press the mouse button and drag in the direction that you want the arc to go, until it is of the desired shape and size. Release the mouse button. An arc is drawn with handles around it, which indicates that it is selected.



About the Advanced Draw Tools

When you use any of the three Canvas ***Advanced Draw Tools*** to create a new object, you create line *segments* and *paths*. A *path* has two or more line *segments*, and contains various types of *points*. Each *point* determines the shape of the *path*, going into, or coming out of, the *point*. Managing these *points* is the heart of the Canvas ***Advanced Draw Tools***.

When you want to draw a *path*, you select the ***Advanced Draw Tool*** from the Canvas ***Tool Box***. The pointer turns into a *crosshair* (+). Position the *crosshair* in the *Canvas Window* where you want to begin drawing your *path*. If you are using the ***Freeform*** tool from the Canvas ***Tool Box***, you drag the mouse to create your *path*. Using either the ***Polygon*** or ***Bezier Curve*** tools, you click or drag the mouse to create the various *points* for your *paths*.

The Canvas ***Advanced Draw Tools*** are ***Multiplex*** icons. Press and hold the *Option* key as you click on the ***Advanced Draw Tool*** for the selected object, and Canvas will display a pop-up hierarchical menu. This menu will allow you to *Edit*, *Add* or *Delete* points from the selected shape.

Freeform Tool

The ***Freeform*** tool from the Canvas ***Tool Box*** lets you draw an irregularly shaped line as you would with a pen or pencil on a sheet of paper. To draw with the ***Freeform*** tool: select the ***Freeform*** tool from the ***Tool Box***. Position the ***Arrow*** in the *Canvas Window* where you want to begin drawing. When you position the ***Arrow*** in the *Canvas Window*, it becomes a *crosshair* "+" to show you the exact spot where your shape will begin. Press the mouse button

and drag it to draw your shape. As you draw, the line continues to lengthen as long as you keep the mouse button depressed. Release the mouse button when you have finished. When you release the mouse button, Canvas automatically selects the object (*handles appear around the bounding rectangle*).

Polygon Tool

The ***Polygon*** tool is used to draw irregular shapes consisting of straight lines and angles, such as triangles, pentagons, trapezoids and open-ended shapes. To draw a polygon, select the ***Polygon*** tool from the ***Tool Box***. Position the ***Arrow*** in the *Canvas Window* where you want to begin drawing. When you position the ***Arrow*** in the *Canvas Window*, it becomes a *crosshair* "+" to show you the exact spot where your shape will begin. Click the mouse once and move it (*you do not have to hold the button down*) to draw your shape. As you move the mouse, a line follows the mouse movement. To end the line segment, click the mouse button and another line begins from that point. You continue moving the mouse and clicking to create the angular shape that you desire. When you are finished, double-click the mouse button. (*If the last point of your shape connects the polygon's starting point, then you only have to click the mouse button once.*) Canvas automatically selects the shape, and handles appear around the *bounding rectangle* of the object.

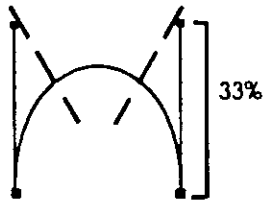
Bezier Curve Tool

The *Bezier Curve* tool, located in the Canvas ***Tool Box*** creates polygonal curves that are defined mathematically by four points, two *anchor points* (*displayed with square handles*) and two *direction points* (*displayed with round handles*). A Bezier Curve forms a smooth curve from these *points*. The *anchor points* define where the curve starts and ends. The *direction points* determine the shape of the curve. You can combine multiple Bezier Curves to create complex effects.

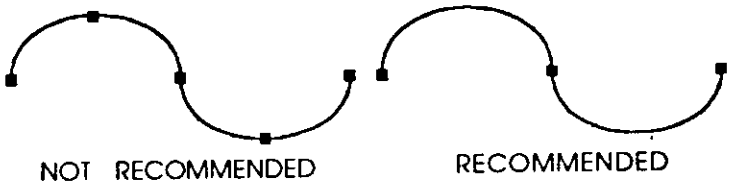
The Four Principles Of Drawing A Bezier Curve

Constructing a *Bezier Curve* can be simple and easy if you keep in mind four fundamental principles:

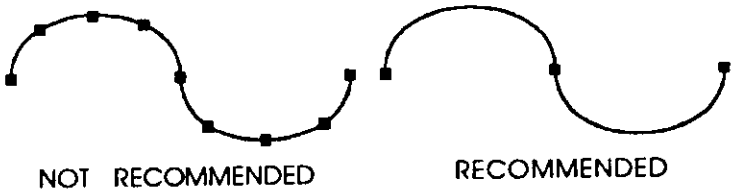
1. **The 33% principle:** draw the curve *segment* approximately one-third the length of its *direction point*.



2. **The *Hump* principle:** draw continuous curve *paths* with their *anchor points* at the beginning and end of each "hump." In other words, draw each "hump" *segment*, one "hump" *segment* at a time.



3. **The *Stretch* principle:** draw "humps" with *anchor points* spaced as far apart as possible.



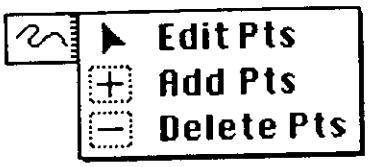
4. **The *Motion* principle:** drag the *direction point* using the same "motion" that the "hump" was drawn from its *anchor point*.

To draw a Bezier Curve, select the ***Bezier Curve*** tool from the *Tool Box*. Position the *Arrow* in the *Canvas Window* where you want to begin drawing. When you position the *Arrow* in the *Canvas Window*, it becomes a *crosshair "+"* to show you exactly where your Bezier Curve will begin. Click the mouse once for the first *anchor point*, then move to where the second point should be, Click and drag the mouse to form the point and establish the curve's direction. As you drag the mouse, the *direction line* follows the mouse movement to create the Bezier Curve. To end the first segment of the curve and draw another, click the mouse button and another curve begins at that point. You continue moving the mouse and clicking to create multiple Bezier Curves. When you are finished, double-click the mouse button. (*If the last point of your shape connects the* Bezier Curve's *starting point, then you only have to click the mouse button once.*) Canvas automatically selects the shape, and handles appear around the *bounding rectangle* of the object.

Modifying Freeform and Polygon Shapes

You can modify a specific *point(s)* in a freeform or polygon shape by selecting the object with the *Arrow* and using the ***Edit Polygon*** (⌘-E) command from the ***Object*** menu.

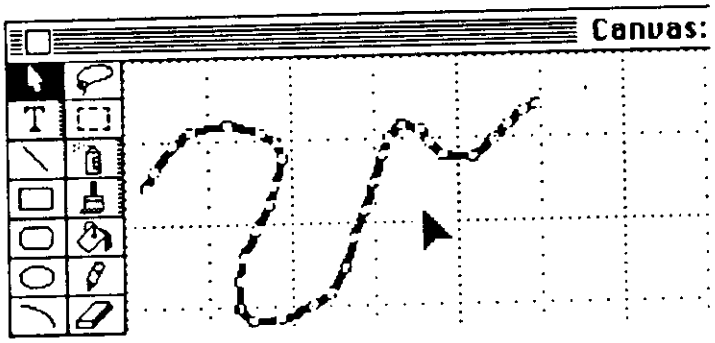
The ***Freeform*** and ***Polygon*** tools are ***Multiplex*** icons. Press and hold the *Option* key as you click on either tool to display a pop-up menu. This menu, shown on the top of the next page, will allow you to *Edit*, *Add* or *Delete* points from the selected shape.



Editing Points in Freeform or Polygon Shapes

To *edit points* in either a freeform or polygon shape:

- **Select the shape with the *Arrow* tool.**
- **Select the *Edit Polygon* (⌘-E) command from the *Object* menu.**
- **Hold the *Option* key as you click the mouse on the respective *Freeform* or *Polygon* tool and drag to highlight the *Edit Pts* option.** Release the *Option* key after the mouse is clicked.
- **Position the cursor in the *Canvas Window*.** The cursor changes its shape to look like the menu selection (▶).



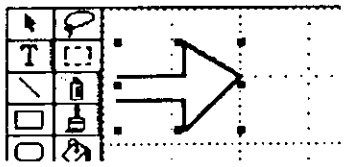
- **Whenever the ▶ cursor is over a *point* in the selected shape, the cursor changes into a *crosshair* (+).**
- **Drag the *point* you wish to *Edit* to its new location.** You can continue to *Edit points* in the selected shape.
- **When you have completed the *Edit*, click the mouse outside of the freeform shape to de-select it.**

USER TIP *WHILE EDITING A POLYGON SHAPE ONLY, PRESSING THE BACKSPACE KEY WILL DELETE THE LAST LINE DRAWN.*

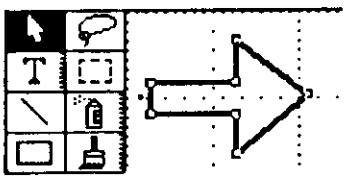
Adding Points to Freeforms and Polygons

To *add points* to a freeform or polygon shape:

- **Select the shape with the *Arrow* tool.**
- **Select the *Edit Polygon* (⌘-E) command from the *Object* menu.**



- **Hold the *Option* key as you click the mouse on the respective *Freeform* or *Polygon* tool and drag to highlight the *Add Pts* option.** Release the *Option* key after the mouse is clicked.
- **Position the cursor in the *Canvas Window*.** The cursor changes its shape to look like the menu selection ( ).
- **Whenever the cursor is over a *point* in the selected shape, the cursor changes into a *crosshair* (+).**



- **Drag on a *point* where you wish to *Add* another *point*.** You can continue to *Add points* in the selected shape.
- **When you have completed the *Add*, click the mouse outside of the shape to de-select it.**

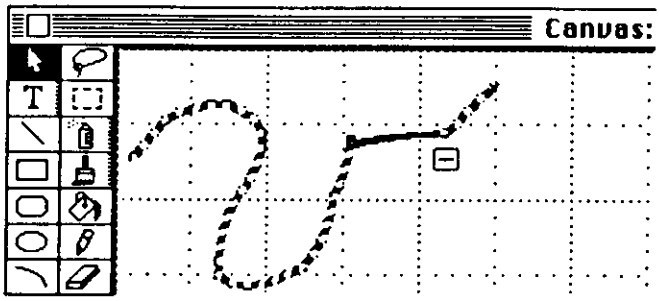
An alternate method of *adding points* to a freeform or polygon shape is:

- **Select the shape with the *Arrow* tool.**
- **Select the *Edit Polygon* (⌘-E) command from the *Object* menu.**
- **Hold the *Option* key (the cursor changes into a [+]).**
- **Whenever the [+] cursor is over a *point* in the selected shape, the cursor changes into a *crosshair*.**
- **Drag on a *point* where you wish to *Add* another *point*.** You can continue to *Add points* to the shape.
- **When you have completed the *Add*, click the mouse outside of the shape to de-select it.**

Deleting Points From Freeforms And Polygons

To *remove a point* from a freeform or polygon shape:

- **Select the shape with the *Arrow* tool.**
- **Select the *Edit Polygon* (⌘-E) command from the *Object* menu.**
- **Hold the *Option* key as you click the mouse on the respective tool and drag to highlight the *Delete Pts* option.** Release the *Option* key after the mouse is clicked.
- **Position the cursor in the *Canvas Window*.** The cursor changes its shape to look like the menu selection ([−]).
- **Whenever the [−] cursor is over a *point* in the selected shape, the cursor changes into a *crosshair*.**
- **Click on a *point* that you wish to *Delete*.** You can continue to *Delete points* in the selected shape.
- **When you have completed the *Delete*, click the mouse outside of the shape to de-select it.**



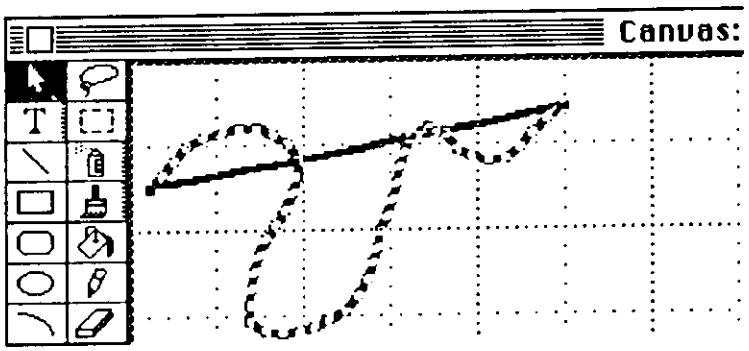
An alternate method of *Deleting points* is:

- **Select the shape with the *Arrow* tool.**
- **Select the *Edit Polygon* (⌘-E) command from the *Object* menu.**
- **Hold the *Shift* and *Option* keys (the cursor changes into a ⊟).**
- **Whenever the ⊟ cursor is over a *point* in the selected freeform, the cursor changes into a *crosshair* (+).**
- **Click on the *point* you wish to *Delete*.** You can continue to *Delete points* in the selected freeform shape.
- **When you have completed the *Delete*, click the mouse outside of the freeform shape to de-select it.**

Automatically Closing and Opening Freeforms and Polygons

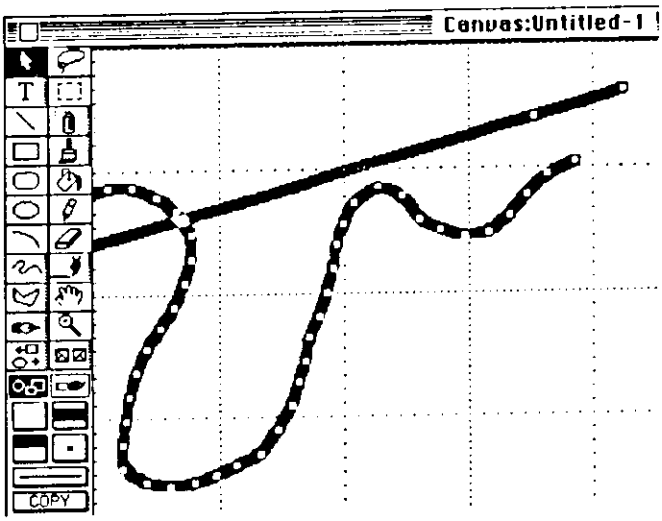
You can also *close* an "open freeform or polygon shape" and *open* a "closed freeform or polygon shape" by using the ⌘ key. To *close* an "open" shape, as illustrated on the next page:

- **Select the shape with the *Arrow* tool.**
- **Select the *Edit Polygon* (⌘-E) command from the *Object* menu.**
- **Hold the ⌘ key as you click the mouse on the *last point* of the freeform or *either the first or last point* in the polygon.** Canvas automatically *closes* the shape by connecting the *first* and *last* points.
- **Click outside of the shape to de-select it.**



Once a freeform or polygon shape has been *closed*, you can *open* it:

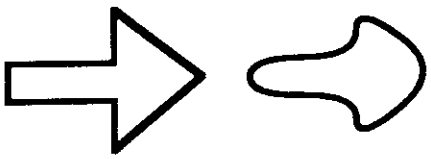
- **Select the shape with the *Arrow* tool.**
- **Select the *Edit Polygon* (⌘-E) command from the *Object* menu.**
- **Hold the ⌘ key as you click the mouse on the *point* of the shape where you want it *opened.*** Canvas automatically *opens* the shape by cutting the connection between the *point* that you clicked on and the next *point* in line in the shape.
- **Click outside of the shape to de-select it.**



Using the UnSmooth and Smooth Commands

You can also ***UnSmooth*** a freeform shape (making it a polygon) or ***Smooth*** a polygon shape (making it a freeform). The ***UnSmooth*** command from the ***Object*** menu changes the smooth freeform into an angular polygon shape. Once a freeform shape has been *unsmoothed*, you can choose the ***Smooth*** command to "soften" the shape. The converse is true if the selected object is a polygon: the ***Smooth*** command will first be available, to modify the shape, followed by the ***UnSmooth*** command to sharpen the edges.

- **Select the freeform shape to unsmooth (or the polygon shape to smooth) with the *Arrow* cursor.**
- **Choose *UnSmooth (or Smooth, as applicable) Polygon* from the *Object* menu.**



Adding Cusps to Freeforms and Polygons

You can add "sharp points," known as *cusps*, to both freeform and polygon shapes. *Cusps will not smooth.* They always maintain a "sharp" image. To create a *cusp*:

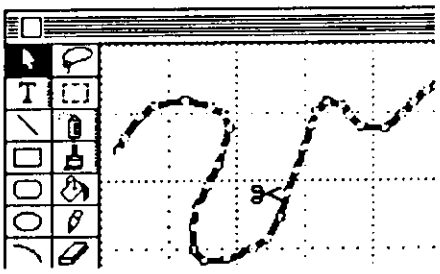
- **Select the shape with the *Arrow* tool.**
- **Select the *Edit Polygon* (⌘-E) command from the *Object* menu.**
- **Hold the *Option* key as you click the mouse on the *point* of the shape where you want to add a *cusp*.** Canvas automatically *adds* an additional *point* on top of the one that you clicked on, creating the *cusp*.
- **Click outside of the shape to de-select it.**

USER TIP *If you modify the shape with the Edit options, the cusp will maintain its "sharpness" unless you press the Tab key as you click on the cusp. Use the Tab key on a cusp to "pull apart" the two superimposed points, thus breaking the cusp.*

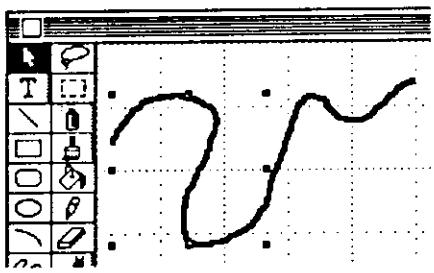
Separating Freeform and Polygon Shapes

A freeform and polygon shape may also be *split* into two separate shapes by using the *Split* (⌘-') command in the *Object* menu. Splitting a freeform or polygon opens the *path* on the *point* where the *scissors* icon "clipped" the shape. Once a shape has been *split*, you can *Bind* freeforms to other freeforms and polygons to other polygons, but you can not bind a freeform to a polygon. To split a freeform or polygon shape:

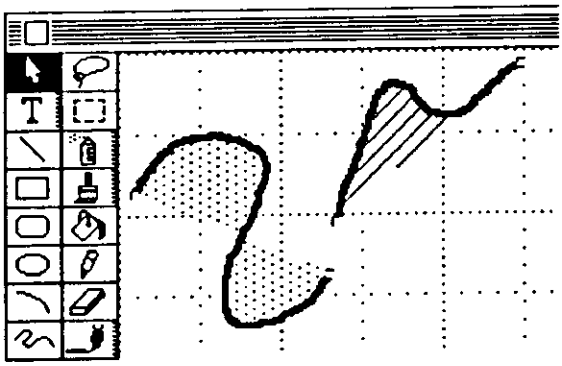
- **Select the shape with the *Arrow* cursor.**
- **Choose *Split Polygon* (⌘-') from the *Object* menu.**
- **Position the cursor on the *point* of the *path* that you want to split.** The cursor changes its shape to look like a pair of *scissors* when it is on any *point* which can be *split*.



- **Click the mouse.** The *point* disappears and the *path* has been opened. You can only *split* an open object once. Closed objects may be split twice, once to open it and, once after that. When you are finished:
- **Click the mouse outside of the object to de-select the *scissors*.** Canvas will select the *last path split*.



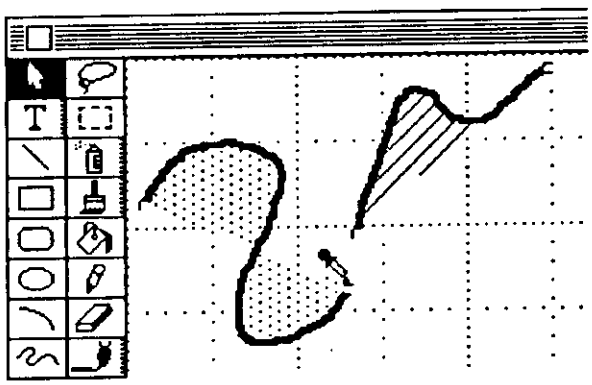
With the shape split into two separate objects, each object can be manipulated individually.



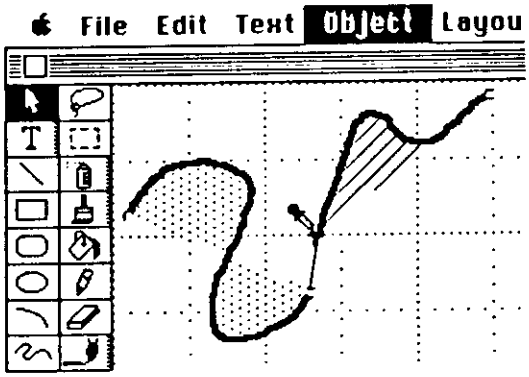
Combining Freeform and Polygon Shapes

The *Bind Polygon (⌘-')* command appears after a freeform or polygon shape has been split or when any two freeform or polygon shapes are selected. This command allows you to connect the *endpoints* of the two objects, making one object. To bind two selected *paths*:

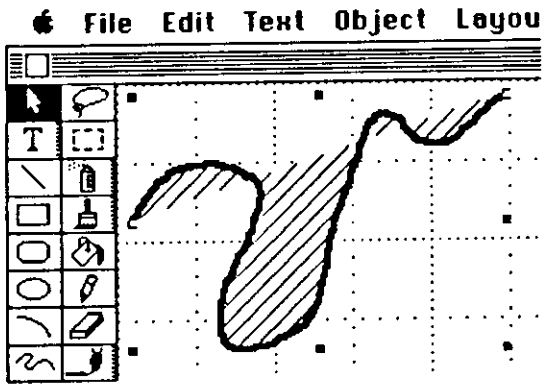
- **Select the two *paths* with the *Arrow* cursor.** *Remember to hold the Shift key as you click on the second path.*
- **Choose the *Bind Polygon (⌘-')* command from the *Object* menu.**
- **Position the *crosshair* cursor on the *endpoint* of one of the selected *paths*.** The cursor changes into an *eye dropper*.



- Drag the mouse from the *endpoint* of the first *path* to the *endpoint* of the second. The cursor changes into a *crosshair* while you drag the mouse. Canvas automatically draws a *path* during the drag. When the *crosshair* is positioned on the *endpoint* of the second, the cursor changes back into an *eye dropper*.



- Release the mouse to bind the two *paths* together.



USER TIP *IT IS IMPORTANT TO REMEMBER THAT YOU CAN ONLY BIND SIMILAR OBJECTS. THAT MEANS FREEFORM SHAPES CAN ONLY BE BOUND TO OTHER FREEFORM SHAPES, AND A POLYGON CAN ONLY BE BOUND TO ANOTHER POLYGON OR TO A LINE.*

Moving Freeforms and Polygons

Use the *Arrow* cursor to move freeform and polygon objects around:

- **Select the object and, without releasing the mouse,**
- **Move the mouse to the desired position.** The selected object(s) will follow the movement of the mouse. If you drag the mouse outside of the *Canvas Window*, Canvas will scroll the window automatically.
- **Release the mouse button when you are satisfied with the new location.**

USER TIP *YOU CAN LIMIT YOUR DRAG TO HORIZONTAL OR VERTICAL MOVEMENTS BY HOLDING DOWN ON THE SHIFT KEY AS YOU DRAG THE MOUSE.*

USER TIP *IF YOU HOLD DOWN THE OPTION KEY AS YOU DRAG THE SELECTED OBJECT, YOU WILL LEAVE THE ORIGINAL OBJECT BEHIND, AND DRAG A COPY OF THE SELECTED OBJECT.*

USER TIP *IF YOU HOLD DOWN BOTH THE ⌘ AND OPTION KEYS AS YOU DRAG THE SELECTED OBJECT, YOU WILL LEAVE A TRAIL OF MULTIPLE COPIES OF THE DRAGGED SELECTION.*

Resizing Freeforms and Polygons

You can resize freeforms and polygons to any desired size:

- **Select the shape with the *Arrow* cursor.**
- **Position the cursor over one of the handles that appear around it's *bounding rectangle*.**
- **Press the mouse on one of the handles and drag in any direction.** You will see the *bounding rectangle* change size, as it follows the mouse movement. If you drag the mouse outside of the *Canvas Window*, Canvas will scroll the window automatically.
- **Release the mouse button when you are satisfied with the new size.**

USER TIP *HOLD THE SHIFT KEY AS YOU RESIZE YOUR OBJECT TO RETAIN THE SHAPE'S ORIGINAL PROPORTIONS.*

Modifying Bezier Curves

As with all Canvas objects, you can resize the entire ***Bezier Curve*** by dragging on a *handle*, or use the ***Edit Bezier Curve*** (⌘-E) command from the ***Object*** menu to modify a specific *point(s)* in the object.

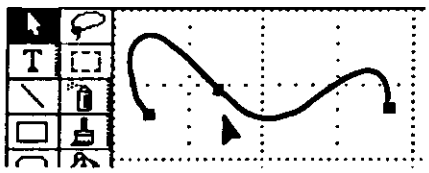
The ***Bezier Curve*** tool is a ***Multiplex*** icon. Press and hold the *Option* key as you click on the ***Bezier Curve*** tool to display a pop-up hierarchical menu. This menu will allow you to *Edit*, *Add* or *Delete* points from the selected curve.

USER TIP *THE POSITION OF EACH OF THE DIRECTION POINTS AND DIRECTION LINES, IN RELATION TO ITS ANCHOR POINT, WILL DETERMINE THE SIZE AND SHAPE OF THE BEZIER CURVE, WHILE THE LENGTH OF THE DIRECTION LINE WILL DETERMINE THE HEIGHT OR DEPTH OF THE BEZIER CURVE.*

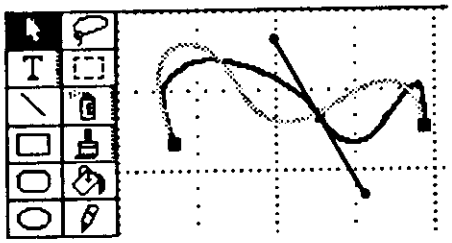
Editing Points in a Bezier Curve

To *edit points* in a *Bezier Curve*:

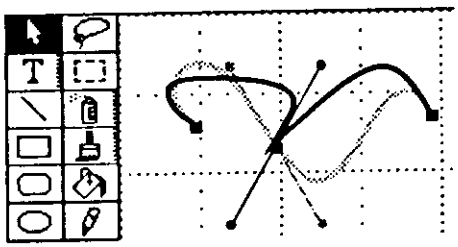
- **Select the curve with the *Arrow* tool.**
- **Select the *Edit Bezier Curve* (⌘-E) command from the *Object* menu.**
- **Hold the *Option* key as you click the mouse on the *Bezier Curve* tool and drag to highlight the *Edit Pts* option.** Release the *Option* key after the mouse is clicked.
- **Position the cursor in the *Canvas Window*.** The cursor changes its shape to look like the menu selection (▶).



- **Whenever the ▶ cursor is over an *anchor point* in the selected curve, the cursor changes into a *crosshair*.**
- **If you want to move the *anchor point* to a another location, simply drag it to its new place.** The *direction points* will be displayed with a *direction line* connecting them and the curve will *animate* on the screen with your mouse movements.



- **If you want to change the shape of the curve, click the mouse.**
- **Place the *crosshair* (+) on the *direction point* that you wish to modify and drag it until you achieve the desired shape.** The curve will *animate* on the screen with your mouse movements.

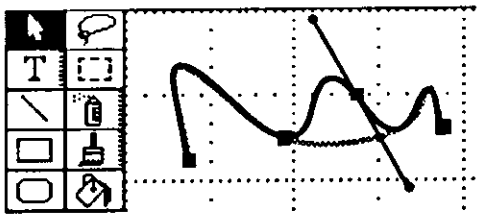


- **Release the mouse button when you have achieved the desired shape for the Bezier Curve.** The *anchor* and *direction points* will remain visible. You can continue to *Edit points* in the selected curve.
- **When you have completed the *Edit*, click the mouse outside of the curve to de-select it.** The *anchor* and *direction points* will disappear.

Adding Points to a Bezier Curve

You can also *add points* to a *Bezier Curve*:

- Select the curve with the *Arrow* tool.
- Select the *Edit Bezier Curve* (⌘-E) command from the *Object* menu.
- Hold the *Option* key as you click the mouse on the *Bezier Curve* tool and drag to highlight the *Add Pts* option. Release the *Option* key after the mouse is clicked.
- Position the cursor in the *Canvas Window*. The cursor changes its shape to look like the menu selection (+).
- Whenever the + cursor is over an *anchor point* in the selected curve, the cursor changes into a *crosshair* (+).
- Click and drag on an *anchor point* where you wish to *Add* another *point*. You can continue to *Add points* in the selected curve.



- When you have completed the *Add*, click the mouse outside of the curve to de-select it.

An alternate means of *adding points* to a *Bezier Curve* is:

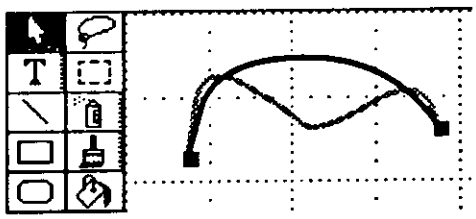
- Select the curve with the *Arrow* tool.
- Select the *Edit Bezier Curve* (⌘-E) command from the *Object* menu.
- Hold the *Option* key as you click and drag the mouse on an *anchor point*.
- When you have completed *adding anchor points*, click the mouse outside of the curve to de-select it.

USER TIP *YOU CAN ADD A CUSP TO A BEZIER CURVE BY CLICKING THE MOUSE WITHOUT MOVING THE CONTROL POINT. LIKE POLYGONS, USE THE TAB KEY TO PULL A CUSP APART.*

Removing Points From A Bezier Curve

Canvas also allow you to *delete points* in a ***Bezier Curve:***

- **Select the curve with the *Arrow* tool.**
- **Select the *Edit Bezier Curve* (⌘-E) command from the *Object* menu.**
- **Hold the *Option* key as you click the mouse on the *Bezier Curve* tool and drag to highlight the *Delete Pts* option.** Release the *Option* key clicking.
- **Position the cursor in the *Canvas Window*.** The cursor changes its shape into: ⊟.
- **Whenever the ⊟ cursor is over an *anchor point*, the cursor changes into a *crosshair*.**
- **Click on the *anchor point* to be deleted.** You can continue to delete *anchor points* in the selected curve.



- **When you have completed the *Delete*, click the mouse outside of the curve to de-select it.**

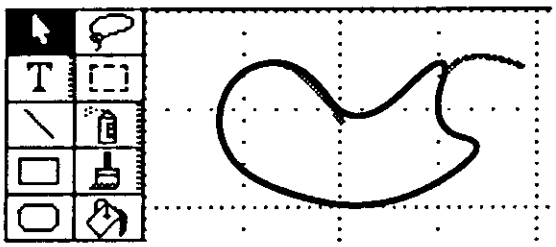
An alternate means of *deleting points* in a ***Bezier Curve*** is:

- **Select the curve with the *Arrow* tool.**
- **Select the *Edit Bezier Curve* (⌘-E) command from the *Object* menu.**
- **Hold the *Shift* and *Option* keys as you click the mouse on an *anchor point*.** The *point* is deleted.
- **When you have completed *deleting anchor points*, click the mouse outside of the curve to de-select it.**

Closing And Opening Bezier Curves

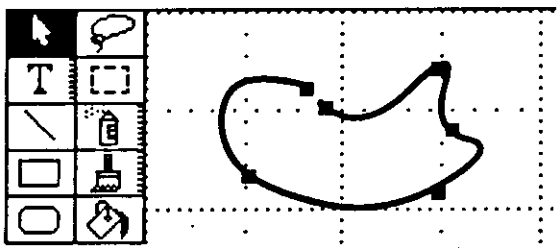
You can *close* an "open Bezier Curve" and *open* a "closed Bezier Curve" by using the ⌘ key. To *close* an "open" Bezier Curve:

- **Select the Bezier Curve with the *Arrow* tool.**
- **Select the *Edit Bezier Curve* (⌘-E) command from the *Object* menu.**
- **Press and hold the ⌘ key as you click the mouse on the *point* to be closed.** Canvas automatically closes the curve, connecting the *first* and *last points*.
- **Click outside of the Bezier Curve to de-select it.**



Once a Bezier Curve has been *closed*, you can *open* it:

- **Select the Bezier Curve with the *Arrow* tool.**
- **Select the *Edit Bezier Curve* (⌘-E) command from the *Object* menu.**
- **Press and hold the ⌘ key as you click the mouse on the *point* of the curve where you want it *opened*.** Canvas automatically *opens* the curve by cutting the connection between the *point* that you clicked on and the next *point* in the curve.
- **Click outside of the Bezier Curve to de-select it.**

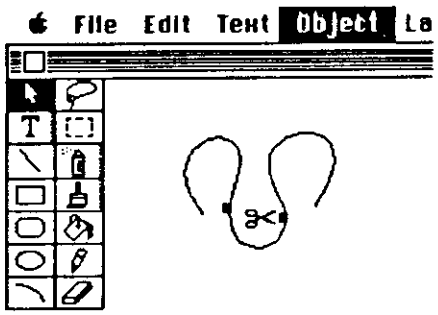


Splitting Bezier Curve Paths Into Separate Paths

A Bezier Curve may also be *split* into two separate shapes by using the *Split* (⌘-') command in the *Object* menu. Splitting a Bezier Curve opens the *path* on the *point* where the *scissors* icon "clipped" the shape. Once a Bezier Curve has been *split*, you can *Bind* it to another Bezier Curve but not to a polygon or freeform shape.

To split a Bezier Curve:

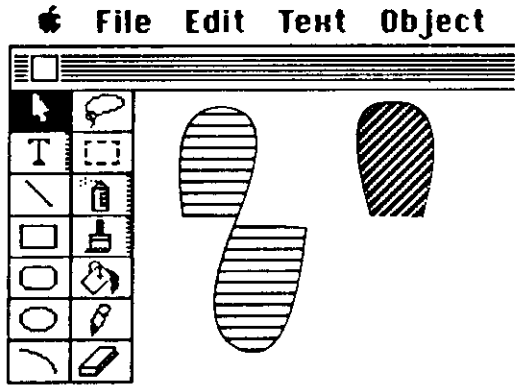
- **Select the Bezier Curve with the *Arrow* cursor.**
- **Choose *Split Polygon (⌘-')* from the *Object* menu.**
- **Position the cursor on the *point* of the Bezier Curve's *path* that you want to split.** The cursor changes its shape to look like a pair of *scissors* when it is on any *point* which can be *split*.



- **Click the mouse.** The *point* disappears and the Bezier Curve's *path* has been opened. You can only *split* an open Bezier Curve once. Closed Bezier Curves may be split twice, once to open it and then, once after that.

When you are finished:

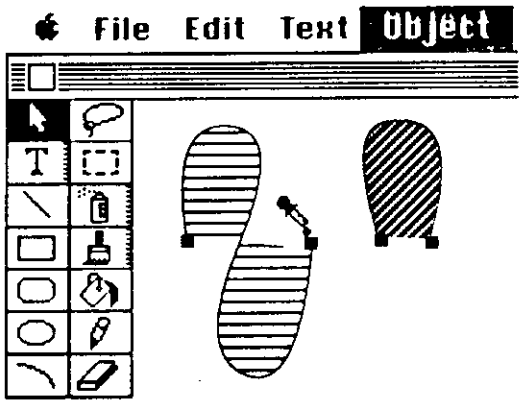
- **Click the mouse outside of the object to de-select the *scissors*.** Canvas will select the *last path split*. With the Bezier Curve split into two separate objects, they can be manipulated individually.



Binding Bezier Curves To Each Other

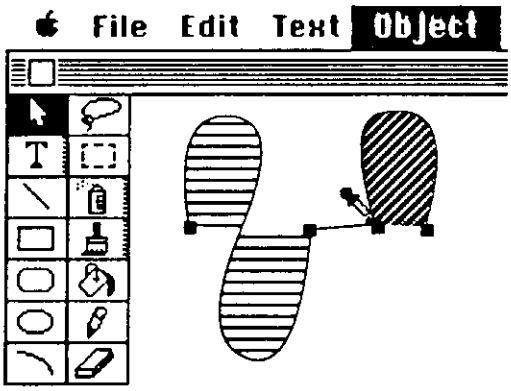
The *Bind Polygon (⌘-')* command appears after a Bezier Curve has been split or when any two Bezier Curves are selected. It allows you to connect the *endpoints* of these objects, making one object. To bind two selected *paths*:

- **Select the two *paths* with the *Arrow* cursor.** *Remember to hold the Shift key as you click on the second path.*
- **Choose the *Bind Polygon (⌘-')* command from the *Object* menu.**
- **Position the *crosshair* cursor on the *endpoint* of one of the selected *paths*.** The cursor changes into an *eye dropper*.

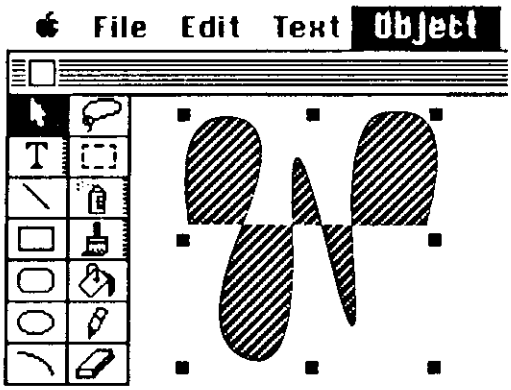


- Drag the mouse from the *endpoint* of the first *path* to the *endpoint* of the second. The cursor changes into a *crosshair* while you drag the mouse. Canvas automatically draws a *path* during the drag.

When the *crosshair* is positioned on the *endpoint* of the second, the cursor changes back into an *eye dropper*.



- Release the mouse to bind the two *paths* together.



USER TIP *IT IS IMPORTANT TO REMEMBER THAT YOU CAN ONLY BIND SIMILAR OBJECTS, I.E., BEZIER CURVES CAN ONLY BE BOUND TO OTHER BEZIER CURVES.*

Moving Bezier Curves

Use the *Arrow* cursor to move Bezier Curves around:

- **Select the Bezier Curve and, without releasing the mouse button,**
- **Move the mouse to the desired position.** The selected Bezier Curve(s) will follow the movement of the mouse. If you drag the mouse out of the *Canvas Window*, Canvas will scroll the window automatically.
- **Release the mouse button when you are satisfied with the new location.**

USER TIP *You can limit your drag to horizontal or vertical movements by holding down on the Shift key as you drag the mouse.*

USER TIP *If you hold down the Option key as you drag the selected Bezier Curve, you will leave the original Bezier Curve behind, and drag a copy of the selected Bezier Curve.*

USER TIP *If you hold down both the ⌘ and Option keys as you drag the selected Bezier Curve, you will leave a trail of multiple copies of the dragged selection.*

Resizing Bezier Curves

You can resize Bezier Curves to any desired size:

- **Select the Bezier Curve with the *Arrow* cursor.**
- **Position the cursor over one of the handles that appear around it's *bounding rectangle*.** You will notice the cursor will change shape into a *"crosshair."*
- **Press the mouse on one of the handles and drag in any direction.** You will see the *bounding rectangle* change size, as it follows the mouse movement. If you drag the mouse outside of the *Canvas Window*, Canvas will scroll the window automatically.
- **Release the mouse button when you are satisfied with the new size.**

Additional Options For Advanced Draw Objects

Additionally, when you have a freeform, polygon or Bezier curve selected, you can:

- Move it to a new position with the *Keyboard Arrows*.
- Change its line pattern from the *Pen Pattern Manager* in the *Tool Box*.
- Change its line shape from the *Pen Shape Manager* in the *Tool Box*.
- Convert it into a paint (*bitmap*) object by using the *Object...* (⌘-I) command in the *Object* menu.
- Copy (⌘-C) or Cut (⌘-X) it into the Clipboard from the *Edit* menu.
- Fill it using the *Fill Pattern Manager* in the *Tool Box*.
- Align it with other selected objects by choosing either the *Alignment* tool in the *Tool Box*, or the *Align...* (⌘-Y) command in the *Object* menu.
- Duplicate it from the *Edit* menu using either the *Duplicate* (⌘-D) or *Duplication...* (⌘-W) commands.
- Lock (⌘-L) or Unlock it from the *Object* menu.
- Rotate (⌘-R) it from the *Effects* menu or from the *Special Effects* tool in the *Tool Box*.
- Flip it horizontally, vertically or both from the *Effects* menu or from the *Special Effects* tool in the *Tool Box*.
- Skew it, distort it or add 1 or 2 point perspective from the *Effects* menu
- Print (⌘-P) it from the *File* menu.
- Change the way it overlaps other objects with the *Bring to Front* (⌘-F), *Send to Back* (⌘-J), *Shuffle Up* (⌘-I) and *Shuffle Down* (⌘-J) commands in the *Object* menu.
- Display dimensioning from the *Information Manager*.
- Convert it into a *MacrObject* (⌘-A) from the *Macro* menu.

About the Paint Tools

There are six ***Paint Tools*** in the Canvas ***Tool Box*** which are used to create paint (*bitmap*) objects:

- ***Spray Can*** - applies a coat of *paint* to the paint object, like an airbrush, in the currently selected ***Pen Pattern***
- ***Paint Brush*** - applies *paint* to a paint object in the currently selected ***Pen Pattern***
- ***Paint Bucket*** - fills any enclosed area in the paint object with the currently selected ***Fill Pattern***
- ***Pencil*** - applies a thin trail of paint in the paint object, provided the mouse button is depressed
- ***Eraser*** - removes any unwanted part of the paint object by changing the pixels in the selected picture
- ***Bitmap Editor*** - provides easy access to the paint mode and control of the bitmap's resolution

Bitmap oriented graphics programs work by manipulating individual dots or *pixels*. When you paint a circle, you are actually turning hundreds of *pixels*, in the shape of a circle, to black. It looks like a circle on the screen, but it is really just a bunch of dots. If you ever want to remove this circle, you will have to *erase* it, much like you would erase something on a sheet of paper.

Spray Can Tool

The ***Spray Can*** tool, from the ***Tool Box***, applies the currently selected ***Pen Pattern*** to the inside of a paint (*bitmap*) object using an airbrush effect. The ***Spray Can*** tool works like a real can of spray paint. If you drag the spray can quickly, you leave a thin layer of *paint* behind. If you move the can slowly, you leave a thicker "coat."

The *Spray Can* tool is a *Multiplex* icon. By using the *Option key* with the *Spray Can* tool icon, Canvas displays a window of the available nozzle shapes, from which you can make a selection. To use the *Multiplex* function of the *Spray Can* icon press and hold the *Option key* as you choose the *Spray Can* tool from the *Tool Box.* Release the *Option* key and drag the mouse across the nozzle shapes, until the *square cursor* encloses your selection, then release the mouse button.

USER TIP *THE SPRAY CAN CAN ONLY SPRAY BLACK DOTS. HOWEVER, IF YOU USE THE BIC MODE IN THE INK MANAGER, YOU CAN CREATE THE EFFECT OF SPRAY PAINTING WITH A WHITE PATTERN.*

Paint Brush Tool

The *Paint Brush* tool from the *Tool Box* applies paint in the currently selected *Pen Pattern* and *Pen Shape* to any paint object. To use the *Paint Brush*, click the mouse on the *Paint Brush* tool. Press and hold the mouse button down to draw. (*As long as you hold the mouse button down, the paint will continue to flow.*) When the *Paint Brush* tool is outside of a paint (*bitmap*) object, it appears *grayed* until the mouse button is pressed. The *Paint Brush* tool also is a *Multiplex* icon. By using the *Option key* with the *Paint Brush* tool icon, Canvas displays a window of the available brush tips, from which you can make a selection. Press and hold the *Option* key as you choose the *Paint Brush* tool from the *Tool Box.* Release the *Option* key and drag the mouse across the brush tips, until the *square cursor* encloses your selection, then release the mouse button.

Paint Bucket Tool

The *Paint Bucket* tool, from the *Tool Box*, fills any continuous white area, within the boundaries of a paint (*bitmap*) object, with the current *Fill Pattern.* To use the *Paint Bucket*, click on the *Paint Bucket* tool in the *Tool*

Box. Position the end of the pouring paint bucket icon in any *bounded* area within a paint object. Click the mouse button to *pour* the paint. When the ***Paint Bucket*** tool is outside of a paint (*bitmap*) object, it is not available for use and Canvas will "*gray*" the tool.

Pencil Tool

The ***Pencil*** tool draws a thin line of black or white ink inside any paint object. It works by turning the individual dots of a bitmap on or off. To use the ***Pencil*** tool, click the mouse on the ***Pencil*** tool in the ***Tool Box***. Position the ***Pencil*** icon inside any paint (*bitmap*) object. Press the mouse button and draw. As long as you hold the button down, the ***Pencil*** will leave a black or white trail behind. When the ***Pencil*** tool is outside of a paint (*bitmap*) object, it is not available for use and Canvas will "*gray*" the tool.

Eraser Tool

The ***Eraser*** tool removes any unwanted part of a paint (*bitmap*) object. It affects the dots contained within a selected paint (*bitmap*) object only. Click on the ***Eraser*** tool in the ***Tool Box***. Position the pointer inside any paint type object, then press the mouse button and sweep it back and forth to erase everything underneath it.

USER TIP *If you make a mistake you can always* **Undo** *(⌘-Z) your last action from the* **Edit** *menu.*

USER TIP *Double click on the* **Eraser** *tool to clear a selected paint object.*

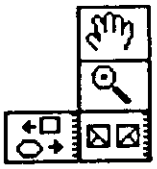
USER TIP *Holding down the* **Shift** *key restricts the* **Eraser** *to follow a straight horizontal or vertical path.*

Bitmap Editor Tool

The ***Bitmap Editor*** tool gives you immediate access to the paint (*bitmap*) mode with the ***Paint Brush*** tool. It also allows you to define the resolution (*dots per inch - dpi*) of a selected paint (*bitmap*) object. To use the ***Bitmap Editor*** tool to access the paint mode, click on the ***Bitmap Editor*** tool in the ***Tool Box*** . When the cursor is placed in the *Canvas Window* it changes into a *crosshair* (+) so that you can define the painting (*bitmap*) area. Press and hold the mouse button as you drag the *crosshair* (+). Canvas draws the outline of an *"invisible"* rectangle which is the painting area. Then, when the painting area is of the size you desire, release the mouse button. Canvas automatically selects the ***Paint Brush*** tool so you can begin painting.

The ***Bitmap Editor*** tool is a ***Multiplex*** icon. By using the *Option key* with the ***Bitmap Editor*** tool icon, Canvas displays a menu of the available resolution levels (*dots per inch - dpi*) for a selected paint (*bitmap*) object. To use the ***Multiplex*** function of the ***Bitmap Editor*** icon, press and hold the *Option key* as you choose the ***Bitmap Editor*** tool from the ***Tool Box***. Release the *Option* key and drag the mouse down the resolution level choices, until your selection is highlighted. Release the mouse button. Canvas automatically resets bitmap resolution so that the next bitmap you create with the ***Bitmap Editor*** tool is set to your new resolution level.

About the Effects Tools



The Canvas ***Tool Box*** contains four ***Effects*** tools which are used in any layer of the *Canvas Window* to assist you with your illustration.

The *Effects* tools are:

- ***Hand*** - scrolls the *Canvas Window*
- ***Magnifying Glass*** - changes the size of the view of the *Canvas Window*
- ***Alignment*** - easily aligns any number of objects to a point or to a line
- ***Special Effects*** - fills, inverts, rotates or flips selected objects

Hand Tool

The ***Hand*** tool is available from the ***Tool Box*** or by pressing down and holding the *Spacebar* to scroll the *Canvas Window*. Select the ***Hand*** tool from the ***Tool Box,*** *(the cursor changes it's shape to look like the* ***Hand*** *tool).* Press and hold the mouse button as you drag your illustration in any direction that you like. Notice that your illustration moves along with the ***Hand,*** and the ***Scroll Boxes*** shift automatically. Release the mouse button when you have finished scrolling your illustration.

Magnifying Glass Tool

The ***Magnifying Glass*** tool is available from the ***Tool Box*** to *zoom in* on or *out* of the *Canvas Window.* You can view a specific area of an illustration with varying levels of detail with the ***Magnifying Glass.*** To use the ***Magnifying Glass*** tool to enlarge an area, select the ***Magnifying Glass*** tool from the ***Tool Box*** *(the cursor changes it's shape to look like the* ***Magnifying Glass*** *with a +*). Position the ***Magnifying***

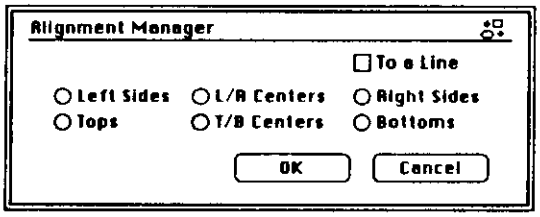
Glass icon in the area of the illustration to enlarge. Click the mouse button once and the *Canvas Window* will double the magnification level to *zoom in* on the area of the illustration.

To use the ***Magnifying Glass*** tool to reduce an area, follow the same procedures as described above, except you hold the *Shift* key as you press on the ***Magnifying Glass*** tool (*the cursor changes it's shape to look like the Magnifying Glass with a -*). Click the mouse button once and the *Canvas Window* will decrease its magnification level to *zoom out* on the area of the illustration.

USER TIP THE MAGNIFICATION LEVELS INCREASE OR DECREASE GEOMETRICALLY: *2X, 4X, 8X, 16X* AND *32X*.

Alignment Tool

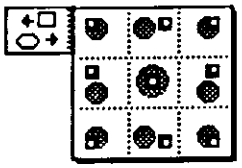
The ***Alignment*** tool allows you to easily align any number of existing objects. With at least one object selected, when you click the mouse on the ***Alignment*** tool icon, the *Alignment Manager* dialog appears:



From this dialog, you can choose between a number of different alignment options (*refer to page 114 for more information on the Align... command*).

USER TIP CLICKING ON THE *ALIGNMENT* ICON WHILE HOLDING DOWN THE ⌘ KEY, WILL BYPASS THE *ALIGN OBJECTS* DIALOG. THE SELECTED OBJECTS WILL BE ALIGNED IMMEDIATELY USING THE PREVIOUSLY SELECTED ALIGNMENT CRITERIA.

The *Alignment* tool is a *Multiplex* icon. By using the *Option* key with the *Alignment* tool icon, Canvas displays a menu with 9 of the most popular alignment options to select from:

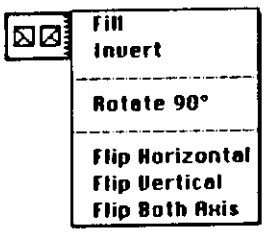


Tops Left Sides	Tops	Tops Right Sides
Left Sides	Centers	Right Sides
Bottoms Left Sides	Bottoms	Bottoms Right Sides

To use the *Multiplex* function of the *Alignment* icon, first select the objects to align. Then press and hold the *Option* key as you choose the *Alignment* tool from the *Tool Box*. Release the *Option* key and drag the mouse across the alignment options until your selection is highlighted. Release the mouse button. Canvas automatically aligns the selected objects.

Special Effects Tool

The *Special Effects* tool gives you access to 6 effects: *Fill, Invert, Rotate 90°, Flip Horizontal, Flip vertical* and *Flip Both Axis*. The *Fill* and *Invert* options are only available for areas of paint (*bitmap*) objects selected with either the *Lasso* or the *Marquee* tools, while the remaining options are available for both *draw* and *paint* objects. To use the *Special Effects* tool, first select the object(s) to apply the effect on. Then choose the *Special Effects* tool from the *Tool Box*. Drag the mouse down the menu options, until your selection is highlighted, then release the mouse button. Canvas automatically apply the effect to the selected object(s).

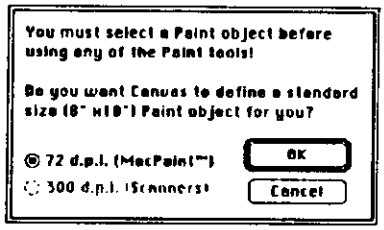


About the Mode Selectors

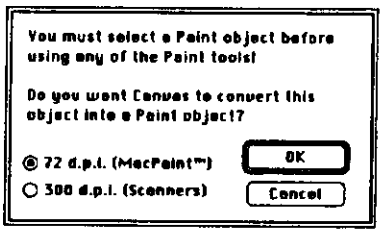
DRAW PAINT

Most Canvas tools are sensitive to the operation being performed. For example, if you select the ***Pencil*** tool, Canvas will only allow its use on a paint (*bitmap*) object. You can control this mechanism directly by selecting a paint object first, and then clicking on the ***Paint Mode Selector***. Likewise, if you are working with paint tools on a paint object, you can click on the ***Draw Mode Selector*** to activate the ***Arrow*** tool and begin performing object operations on the illustration. Double-clicking on a *paint object* switches Canvas to the ***Paint Mode***. Clicking on the ***Arrow*** tool, switches Canvas to the ***Draw Mode***.

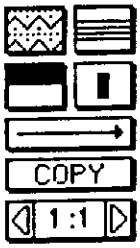
If you click on the ***Paint Mode Selector*** icon and there are no objects present in the drawing, the following dialog will be displayed:


You must select a Paint object before using any of the Paint tools!
Do you want Canvas to define a standard size (8" x 10") Paint object for you?
72 d.p.i. (MacPaint™)
300 d.p.i. (Scanners)
OK
Cancel

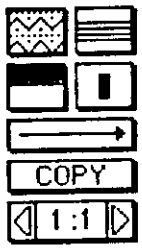
Clicking on the ***Paint Mode Selector*** icon and the selected object is *NOT* a paint object, Canvas allows you to create a paint object within the selected object's *bounding rectangle.*


You must select a Paint object before using any of the Paint tools!
Do you want Canvas to convert this object into a Paint object?
72 d.p.i. (MacPaint™)
300 d.p.i. (Scanners)
OK
Cancel

About the Palette Managers



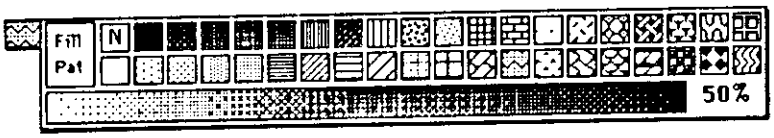
When you click on one of the Canvas ***Palette Managers***, in the ***Tool Box***, a *pop up hierarchical menu* appears. ***Palette Managers*** work just like the menus in the ***Canvas Menu Bar***, except they *pop up* in different places. They are very convenient and fast. The ***Palette Managers*** are:



Fill Pattern Manager
Foreground Manager
Background Manager
Ink Manager
Line Fill Manager
Pen Shape Manager
Arrow Manager
Zoom Manager

Fill Pattern Manager

The ***Fill Pattern Manager*** determines the pattern or gray scale level used to fill the interior area of any object. It also determines the pattern used by the ***Paint Bucket*** and the *Fill* special effect. The current ***Fill Pattern*** is always shown in the ***Fill Pattern Manager*** selector.

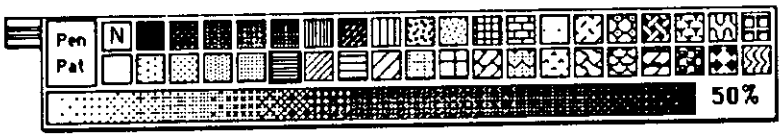


To change the ***Fill Pattern*** of a selected object or to change the current default setting if no object is selected, press the mouse on the ***Fill Pattern Manager***. Drag the mouse to the desired fill pattern, then release the mouse button. You can also change ***Fill Pattern*** palettes. Hold the *Shift* key as you press on the ***Fill Pattern*** icon to get the *first palette;* the *Option* key displays the *second palette; and* the ⌘ key gives you the *third palette.*

USER TIP *SINCE THE FILL PATTERN MANAGER AND THE PEN PATTERN MANAGER USE THE SAME PATTERN PALETTES, CHANGING THE ACTIVE PALETTE OF ONE ALSO CHANGES THE ACTIVE PALETTE OF THE OTHER.*

Pen Pattern Manager

The ***Pen Pattern Manager*** determines the pattern or gray scale level used to draw lines or borders around all objects. It also determines the pattern used by the ***Spray Can*** and the ***Paint Brush*** within a paint object. The current pen pattern is always shown in the ***Pen Pattern Manager*** window.



To change the ***Pen Pattern*** of a selected object or to change the current default setting if no object is selected, press the mouse on the ***Pen Pattern Manager*** and drag the mouse to the desired pen pattern, then release the button. You can also change ***Pen Pattern*** palettes: hold the *Shift* key as you press on the ***Pen Pattern Manager*** to get the *first palette;* hold the *Option* key for the *second palette;* the ⌘ key to get the *third palette.*

Foreground Manager
Background Manager

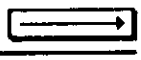
The ***Foreground*** and ***Background Color Managers*** determine the colors Canvas uses to draw and print all objects. Bitmap objects can be assigned ***Foreground*** and ***Background*** colors to be used throughout. To change the ***Foreground*** and ***Background Color*** of a selected object or to change the current default setting if no object is selected: press the mouse button on either the ***Foreground*** or ***Background Color*** icon and drag the mouse to the desired color, then release the mouse button.

Pen Shape Manager

The *Pen Shape Manager* determines the pen shape Canvas uses to draw the borders around all objects. It also determines the type of the border used to paint basic shapes inside a paint object. To change the *Pen Shape* of a selected object or to change the current default setting if no object is selected: press the mouse on the *Pen Shape Manager.* Drag the mouse to the desired pen shape, then release the mouse button.

USER TIP *CANVAS ALLOWS YOU TO SPECIFY PEN SHAPES WHERE ONE OF THE SIDES HAS NO THICKNESS, THIS FEATURE CAN RESULT IN SOME INTERESTING EFFECTS ESPECIALLY WITH OVALS AND CIRCLES. POSTSCRIPT, HOWEVER, DOES NOT SUPPORT A PEN SHAPE WHERE ONE SIDE HAS NO WIDTH. THEREFORE, LINES OR OBJECTS OF THIS TYPE (E.G. FRAME AROUND A BOX ETC...) WILL NOT HAVE A FRAME AT ALL ON A LASERWRITER.*

Arrow Manager



The *Arrow Manager* determines the type of line to draw. The five types available are: plain, left arrowhead, right arrowhead, double arrowhead and auto dimensioning arrowhead. Use the *Arrow Manager* to change the line type of a selected line or to change the current default setting if no object is selected: press the mouse button on the *Arrow Manager* icon; drag the mouse to the desired line type; then, release the button.

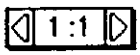
Ink Manager

The *Ink Manager* icon determines the *ink type* that Canvas uses to fill and paint all bitmap objects. The *ink* selections allow you to create various special effects in your illustration by changing what happens when one paint (*bitmap*) object *overlaps* another.

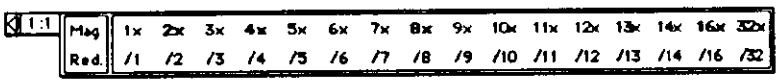
The ***Ink Manager*** has four transfer modes from which you can select: *Copy, Or, Xor* and *Bic*. Each mode has a *reversal*, that is, *Not Copy, Not Or, Not Xor* and *Not Bic*. *Reversals* work the same, except that the selected object is *first inverted*, then the transformation is applied to it. To use the ***Ink Manager*** on a selected object, or to change the current default setting if no object is selected, press the mouse button on the ***Ink Manager***. Drag the mouse to the desired mode, then release the button.

USER TIP *ON AN IMAGEWRITER PRINTER ALL TRANSFER MODES FROM THE* ***Ink Manager*** *WILL PRINT JUST LIKE YOU SEE THEM ON THE SCREEN. ON A LASERWRITER ONLY BITMAP OBJECTS WILL PRINT LIKE THE SCREEN IMAGE, REGARDLESS OF THE SETTING IN THE INK MANAGER. DRAW OBJECTS WILL PRINT IN THE COPY MODE ONLY.*

Zoom Manager



The ***Zoom Manager*** allows you to change the *View's* magnification or reduction level. You can *zoom in* to a 32 times magnification level or *zoom out* to a 32 times reduction level. You can draw, edit, type or paint without limitations.



To change the current ***Zoom Manager's*** magnification or reduction level: press the mouse button on the ***Zoom Manager*** icon and drag to the desired selection. Release the button. You can also use the ***Zoom In*** or ***Zoom Out*** arrows: the *right* arrow increases the magnification level (***Zoom In***); the *left* arrow decreases it (***Zoom Out***).

Magnification levels displayed in **boldface** type, indicate the levels at which Canvas allows editing of high resolution bitmaps (2x, 4x, 8x, 16x and 32x).

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91 *Arrows...*
92 *Colors...*

93 ***The Text Menu***

93 *Font*
94 *Size*
94 *Justification*
95 *Style*
96 *Case*
96 *Type...*

98 ***The Object Menu***

98 *Bring to Front*
98 *Send to Back*
99 *Shuffle Up*
99 *Shuffle Down*
100 *Send to Layer*
101 *Object... (Single Object)*
113 *Object... (Multiple Objects)*
113 *Scale...*
114 *Align...*
116 *Group*
116 *Ungroup*
117 *Lock*
117 *Unlock*
118 *Edit Polygon*
119 *Smooth Polygon*
119 *UnSmooth Polygon*
120 *Split/Bind Polygon*

122 ***The Layout Menu***

122 *Show/Hide Rulers*
124 *Rulers...*
126 *Displays*
127 *New View*
128 *Views*

The Layout Menu

130 *Layer Manager*
131 *Layers*
134 *Snap to Grid*
134 *Guides*
135 *Show/Hide Grid Lines*
135 *Grids...*
136 *Show/Hide Size*
137 *Show/Hide Info Manager*
138 *Show/Hide Page Breaks*
138 *Drawing Size...*

140 ***The Effects Menu***

141 *Rotate*
141 *Free Rotate*
141 *Flip Horizontal*
141 *Flip Vertical*
141 *Flip Both Axis*
142 *Fill*
142 *Invert*
142 *Crop Work*
142 *Trace Edges*
142 *Auto Trace to...*
145 *Perspective (1 Point)*
145 *Perspective (2 Point)*
145 *Skew*
145 *Distort*
145 *Restore Original*

146 ***The Macro Menu***

147 *Add Macro*
147 *Delete Macro*
148 *Load Set...*
148 *Save Set As...*
148 *Clear Set...*

149 ***The Windows Menu***

About the Canvas Menu Bar

The Canvas menus provide for a standard Macintosh interface for information, file management and editing, as well as specialized commands to control and enhance your illustrations.

Organized in nine menus, the Canvas commands appear in: , File, Edit, Text, Object, Layout, Effects, Macro, and Windows, as shown above.

When you pull down a Canvas menu, you will notice that some of the commands are dark, while others appear *dimmed*. Canvas allows you immediate access to all of the dark menu commands. Commands that appear *dimmed* are not available at that time. For example, when you first open a new Canvas illustration, the ***Print Selection*** command is *dimmed* until you draw or place an object in the *Canvas Window*.

Some commands appear with a *dark triangle* (▶) on the right side of the pull down menu. This indicates that the selection is *hierarchical*. By pressing down and holding the mouse button as you drag it over the selection, another menu will be displayed from which you will execute a command for Canvas.

Commands that appear with an *ellipsis* (...) display a *Canvas Manager* dialog box asking you for more information to carry out the command.

A *check mark* (✓) appearing in front of a menu command indicates that the command, such as ***Bold*** or *Underline*, is in effect. To cancel the command, simply choose that command again.

Numerous Canvas menu commands can be executed directly from the keyboard, without pulling down a menu. These keyboard equivalents are called *Command Keys* and are displayed to the left of a menu command, if available. To use a keyboard equivalent, hold down the *Command key* (⌘) and press the key that corresponds to the desired command.

- The **Menu** provides information about the version of Canvas you are working with, an on-line *Help* file and access to your desk accessories.

- The **File Menu** gives you the standard Macintosh file-management functions of opening, saving, and printing your illustrations. It also give you access to commands for saving and printing individual layers in your illustration, as well as setting important *User Preferences*.

- The **Edit Menu** lists the standard functions of selecting all the objects in your illustration, plus cutting and pasting. Additionally, Canvas allows you to customize individual paint and draw tools and edit arrowheads and line terminators for use in technical drawings.

- The **Text Menu** provides complete control over all of the available options for text manipulation, including font, size, style and justification.

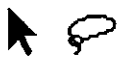
- The **Object Menu** contains all of the options available for each of the individual pieces of your illustration. From this menu you can change the state of individual objects or groups within your illustration.

• The **Layout Menu** provides the options which affect the appearance of your entire illustration. From this menu, you can access multiple layer documents, customize your rulers and grids, or specify your image size from a single sheet of paper up to a nine foot by nine foot billboard.

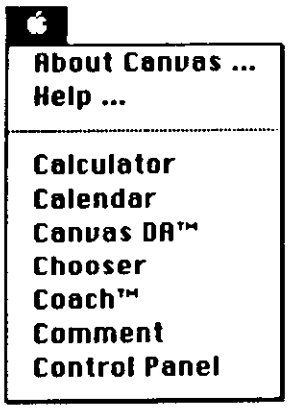
• The **Effects Menu** contains the tools necessary for rotation of individual or groups of objects. Also, it is in this menu that you will find all of Canvas' special effects, including: automatic tracing, perspective, skewing and distortion.

• The **Macro Menu** allows you to store any collection of objects or groups of objects that you frequently use. Once installed, these macros become an extension of the basic Tool Palette.

• The **Windows Menu** lists all of the open illustrations on your desktop. This menu allows you to manage which illustration is in the foreground of the Canvas window.

USER TIP  *SOME MENU COMMANDS WORK WITH THE ENTIRE CANVAS IMAGE, WHILE OTHERS ONLY WORK ON AN AREA SELECTED BY THE LASSO, THE SELECTION RECTANGLE, OR BOTH. AS YOU GO THROUGH THIS SECTION OF THE MANUAL, IF A COMMAND ONLY WORKS ON A PARTICULAR SELECTION, THE ICONS OF THE SELECTION TOOLS THAT YOU CAN USE TO MAKE THE SELECTION, APPEAR IN THE UPPER LEFT CORNER OF THE COMMAND'S DESCRIPTION.*

About the Menu

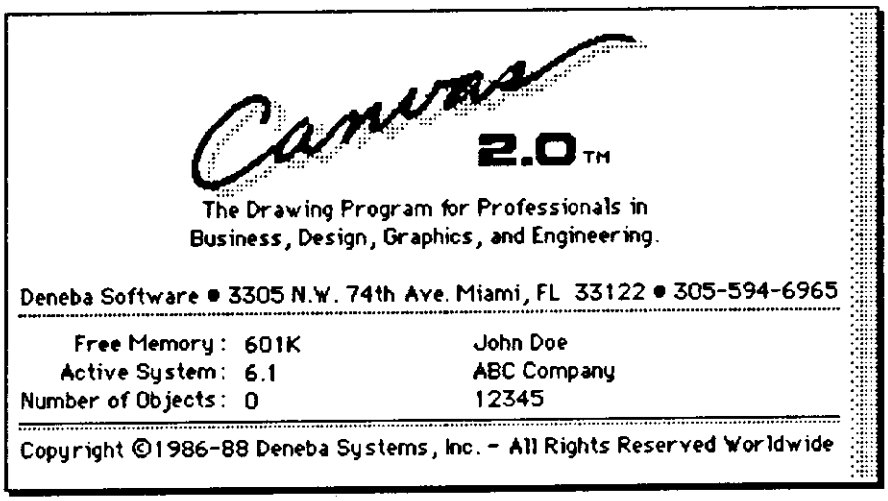


About Canvas...

The Menu provides information about Canvas. There are two commands in this menu which pertain to Canvas: "About Canvas..." and "Help...".

The remaining commands in the Menu give you access to the desk accessories that you have in your system.

Select the ***About Canvas...*** menu option to inquire about the version number of your copy of the Canvas program, memory allocation, active System version number, and number of objects on display. When you have completed viewing this screen, simply click the mouse anywhere on the screen.


Canvas 2.0™
The Drawing Program for Professionals in
Business, Design, Graphics, and Engineering.
Deneba Software • 3305 N.W. 74th Ave. Miami, FL 33122 • 305-594-6965
Free Memory: 601K
Active System: 6.1
Number of Objects: 0
John Doe
ABC Company
12345
Copyright ©1986-88 Deneba Systems, Inc. - All Rights Reserved Worldwide

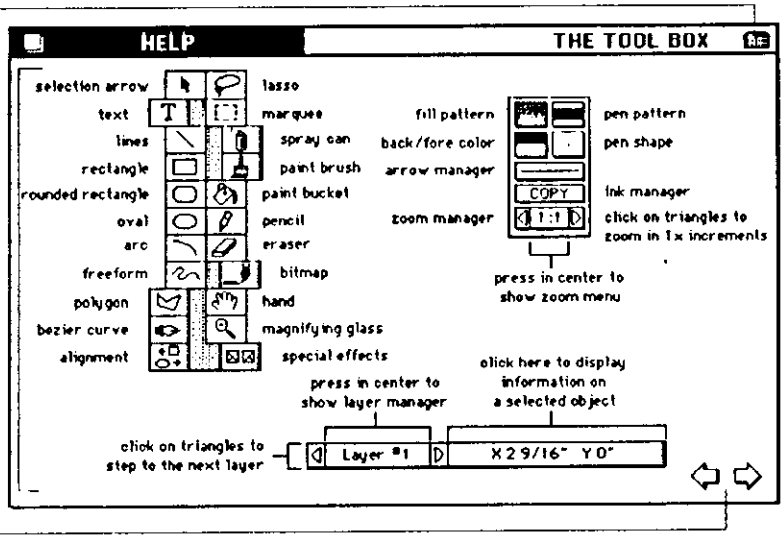
Help...

The *Help* menu gives you information on how to use many of the features in the Canvas program. When you choose *Help*, Canvas displays a *"Home Card"* hyper-text dialog window. For information about the function and operation of a particular tool, simply click on the *icon* for the tool. Use the *"Home Button,"* located in the upper right corner of each card to immediately return to the Main Help Screen or *"Home Card"* pictured below. The *"Left* and *Right Scroll Arrows,"* located in the lower right corner of each card will allow you to move forward or backward through the Canvas Help System.

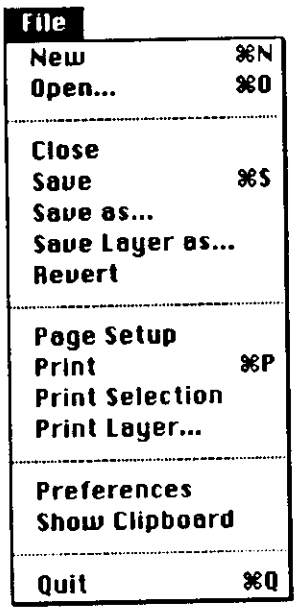
Home Button
Click here to return to the Main Help Screen (Home Card)

Tool Buttons
Click on any icon for more information on the respective tool

Scroll Arrows
Click on the Left or Right Arrows to move forward or backward through the Help System screens



About the File Menu



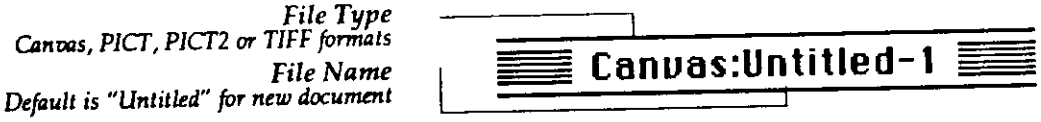
The File menu lists commands that pertain to your entire illustration. From this menu you can create a new illustration or open, close, save or print an existing illustration. While you are working with an illustration, you can save your changes, save a particular layer of an illustration as a separate document, revert to the last saved version of an illustration, change the page setup for printing, print your entire graphic, or selected objects in the illustration, or an entire layer. Here, also, you can modify your preferences files, display objects stored in the clipboard, or quit.

New ⌘N

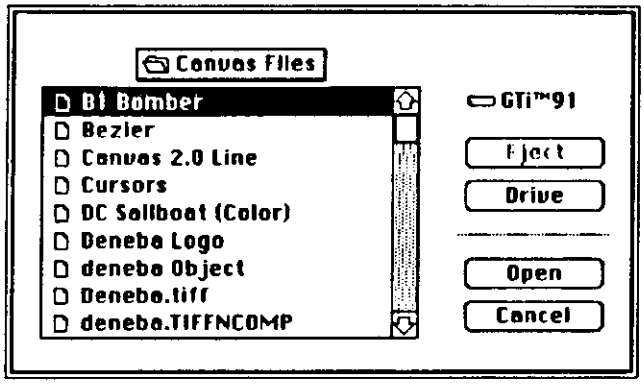
New opens a new untitled document from the Canvas desktop or any illustration window. This document will be created from the *Canvas Prefs* file. Canvas allows you to have as many illustrations open at one time as the memory of your computer will allow.

Open ⌘O

Open allows you to open an existing illustration that was created by Canvas or MacPaint and MacDraw, or any illustration that was saved as a PICT, PICT2 or TIFF document.



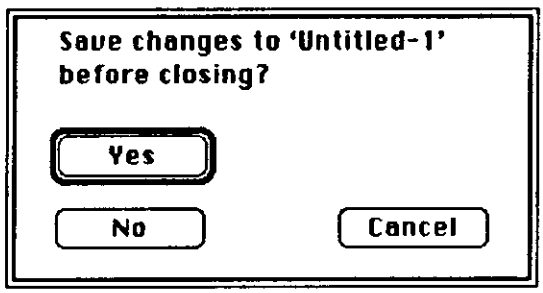
When the *Open* command is selected, Canvas displays a standard dialog listing all of the files Canvas can open on the current disk or in the current folder.



Scroll through the list of files until you find the one that you want to open, then either click on its name and then click on the "Open " button or double click on the file name. Use the "Drive" and Eject" buttons as needed to access folders or files on other disks.

Close

Close will put away the top-most illustration. If you have made any changes to the illustration since the last time it was saved, or if it is a new document, Canvas will give you the opportunity to save your work before closing the window.



This is the same as clicking in the *Close Box* (located in the upper left corner of the *Canvas Window*).

Save ⌘S

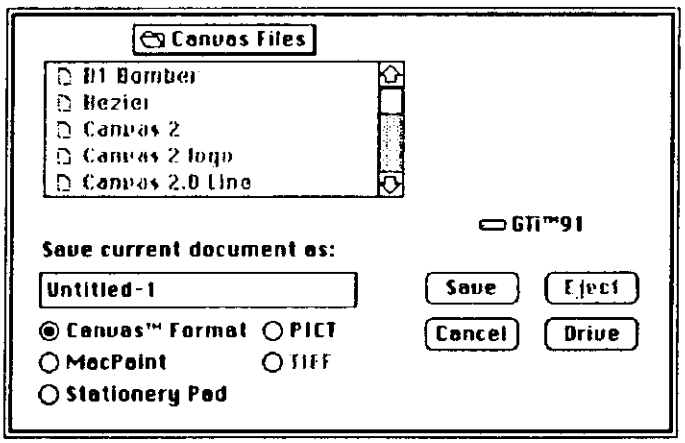
Save will update your illustration on disk, recording any changes that you may have made since the last time the illustration was saved. It will overwrite the previous version of your illustration on disk. The *Save* command will be dimmed if you did not make any changes to the illustration since the last time that you saved it.

If you have more than one illustration open at a time, to save a particular illustration, you must first insure that it is the top-most window on the screen. You can do this simply by clicking anywhere within that illustration's window, or use the *Windows* menu (*Refer to page 3-197 for more information on the Windows menu.*)

Save As...

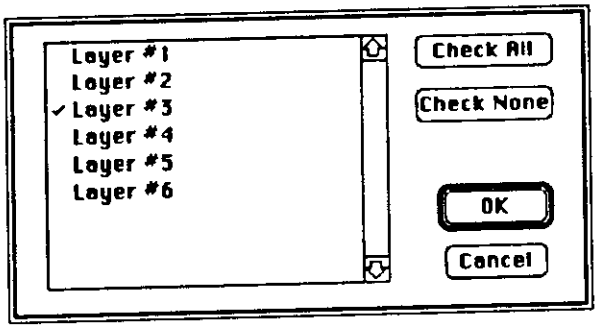
If the illustration is new, that is, if it has never been saved, Canvas will ask you to name the document before saving. Also, if you want to save the changes to your original illustration under a different name or file format, you will want to use the *Save as...* command.

Canvas will respond with a dialog box listing all of the Canvas files on the current disk or open on the folder in which you want to save your document.



Save Layer As...

Use the *Save Layer As...* command when your illustration is composed of multiple layers, and changes were only made in particular layers. Now you can isolate these layers in your illustration and save them as a separate document. Check the layer you want to save:



Click *OK* or press *Return* and Canvas will display the "Save current document as..." dialog.

USER TIP *CHECKING MULTIPLE LAYERS WILL ALLOW CANVAS TO COMBINE LAYERS INTO A NEW ILLUSTRATION. EACH LAYER REMAINS SEPARATE IN THE NEW DOCUMENT, PROVIDED THAT YOU SAVE THE NEW DOCUMENT IN THE CANVAS FORMAT OPTION.*

Revert

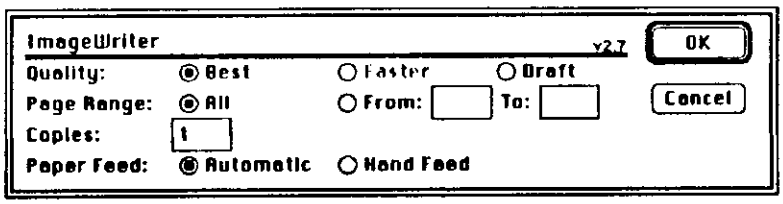
Revert will discard any changes that you made to your illustration since the last time that you saved it. Since this command can not be undone once it is executed, Canvas will display a dialog box to double-check that you want to discard all of your changes.

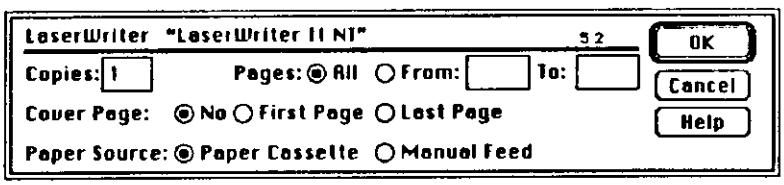
Page Setup

Page setup allows you to customize the print functions of Canvas. As with most Macintosh programs, Canvas allows you to define the paper size and orientation. The options you choose here can affect the rulers, page breaks and drawing size dimensions. However, you can also define the printing order of multiple page illustrations and control the overlap between pages (tiling). All settings apply only to the active (topmost) illustration. Whenever you save an illustration, all settings are saved with the document. The option settings for Page Setup vary depending upon whether you are using an ImageWriter, a QuickDraw printer (such as the Apple LaserWriter II SC or General Computer's PLP) or a PostScript laser printer. Canvas automatically recognizes your printer and only displays the appropriate dialog boxes.

Print ⌘P

This command prints the active (topmost) document to the selected printer. Choosing ***Print*** will display one of the following dialogs, depending on the printer currently selected. A number of printing options can be selected using either one of these dialogs.





Print Selection

The *Print Selection* command gives you the ability to only print an object or a group of objects in the active layer.

USER TIP *USE THIS COMMAND FOR PRINTING PROOFS OF YOUR ILLUSTRATION.*

Print Layer

Print Layer allows you to print different versions of your illustration by printing layers individually or in combinations. Whichever layers are *visible* in the *Canvas Window* at the time of printing also print on paper.

To *hide* layers that you do not want to print, select the *Layer Manager* from the *Layout* menu, or the *Layer Monitor* in the *Canvas Window*. Click on the layer name that you do not want printed, then *de-select* the *Visible* button by clicking the mouse in it.

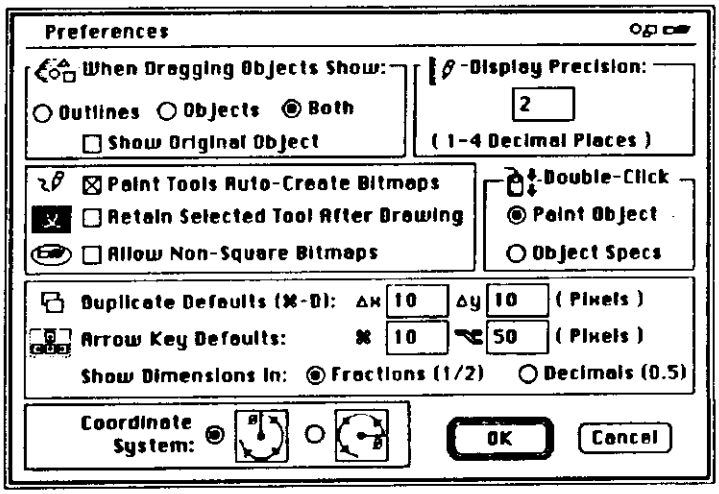
To *show* layers which are hidden that you want to print, select the *Layer Manager* from the *Layout* menu, or the *Layer Monitor* in the *Canvas Window*. Click on the layer name that you want printed, then *select* the *Visible* button by clicking the mouse in it.

USER TIP *USE THIS COMMAND FOR PRINTING PROOFS OF YOUR ILLUSTRATION.*

Preferences

Choosing the *Preferences* selection from the File Menu opens up a new dimension in graphic arts programs. While Canvas give you the ability to create custom illustrations, it also gives you the ability to customize your working environment. To customize the *Preferences* dialog shown on top of the next page:

- **Click the *Outlines* button to only display an outline of the object while it is being dragged; click the *Objects* button to display the actual object while it is being dragged; or, click the *Both* button if you want**



to display an outline of the object during a *fast drag*, or the actual object if you click and then pause before dragging. Click the *Show Original Object* button to leave a copy of the original object in-place while the object is being dragged. When the mouse button is released, the copy of the original in-place object will disappear.

- Type a value from 1 to 4 in the *Display Precision* window to define the number of decimal places Canvas displays all dimensioning data in.

- By clicking the *"Paint Tools Auto-Create Bitmaps,"* Canvas will automatically allow you to create a paint (*bitmap*) object whenever a *Paint Tool* is selected from the *Tool Box* and the tool is positioned inside the *Canvas Window*. If this option is not selected, in order to create a paint (*bitmap*) object, you must first define a *bitmap area* with the *Bitmap Editor* tool in the *Tool Box*. Click the *Retain Selected Tool After Drawing* button if you do not want Canvas to revert back to the *Arrow* cursor. The *Allow Non-Square*

Bitmaps button, if checked, permits irregular shaped bitmap objects in your illustration.

- Click the *Double-Click Paint Object* button if you want Canvas to display the *Bitmap Conversion* dialog to change a draw object into a paint (*bitmap*) object when the mouse button is *double-clicked*; click the *Double-Click Object Specs* button if you want Canvas to display the *Object Specs* dialog to modify the characteristics of the selected object(s) when the mouse button is *double-clicked*. You can also click *both off*, in which case, Canvas will not do anything if the mouse is *Double-Clicked*.

- Type a value in the *Duplicate Defaults: X* and/or *Y* windows to change the offset Canvas applies to duplicated objects. Type a value in the *Arrow key Defaults: Command* (⌘) *Key* and/or the *Option* (⌥) *key* windows to change the offset Canvas applies to moving selected objects with the keyboard's *Arrow keys* while pressing either the *Command* or *Option keys*. Click either the *Fractions* or *Decimals* button to tell Canvas the format that you wish to view the Auto-Dimensioning data for lines and arcs in.

- Click either the *Standard* or *Engineering Coordinate System* button to tell Canvas the manner in which it will define the *angle* and *direction of rotation*.

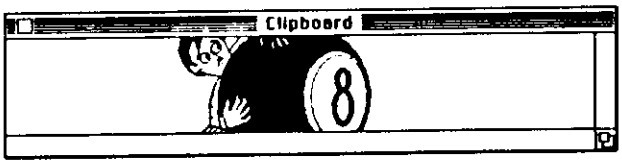
Standard

Engineering

- Click the *OK* button to save your changes and close the dialog or *Cancel* if you change your mind.

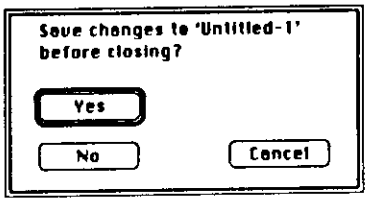
Show Clipboard

The *Show Clipboard* command will display the Macintosh Clipboard window. It contains the last object that was cut or copied. The size of the Clipboard window may be changed by dragging on its *size box*. To close the Clipboard window, click on its *close box*.

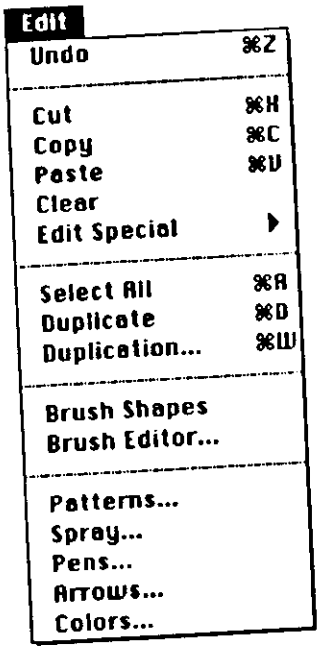


Quit ⌘Q

Quit will close all open Canvas illustrations and return you to the Finder desktop. If a Canvas illustration is open and you made changes to the document since it was last saved, Canvas will display a "Save changes?" dialog before allowing you to quit.



About the Edit Menu



The *Edit* menu lists the standard Macintosh editing commands for undo, cut, copy and paste, as well as several unique and powerful editing functions. From this menu, Canvas allows you the ability to select all objects in a particular layer of your illustration and not only duplicate them, but simultaneously create custom effects through the use of the Duplicate Options menu. Canvas also gives you total control over your paint tools - brushes, patterns and spray nozzles, while providing editing tools for pens, arrows and colors.

Undo ⌘Z

Undo will reverse your last action.

When you choose ***Undo***, Canvas deletes the last change that you made to your illustration. However, the ***Undo*** command will not work with commands to cancel any non-editing type actions:

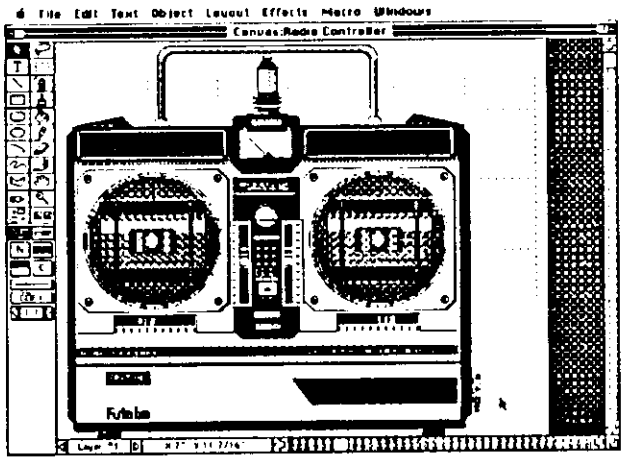
- scrolling through your Canvas illustration
- selecting or deselecting elements in a Canvas graphic
- reverting to the last saved version of your illustration

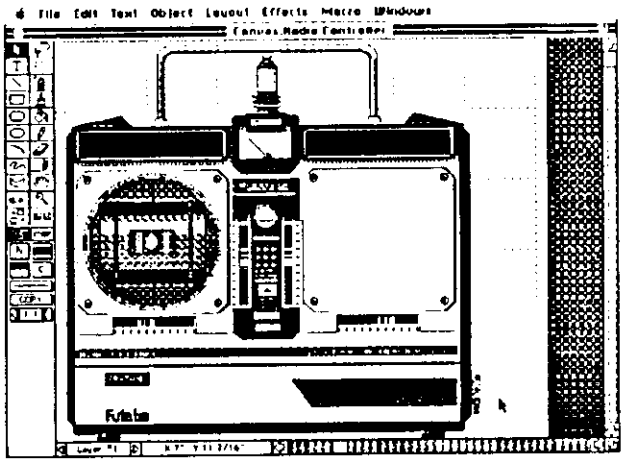
USER TIP *When you use the* **Undo** *command, Canvas will always allow you to undo whatever your last undo command accomplished. Simply reselect the* **Undo** *command again.*

Cut ⌘X

The *Cut* command removes any selected object, groups of objects or selected area from your illustration and places it into the Clipboard.

Canvas copies all of the unique specifications that are defined for the deleted object, group of objects or selected area, into the Clipboard as well. This is a very handy feature, since Canvas will retain all of this information when you use the *Paste* command. The last cut selection remains in the Clipboard until the next time that you *Cut* or use the *Copy* command.





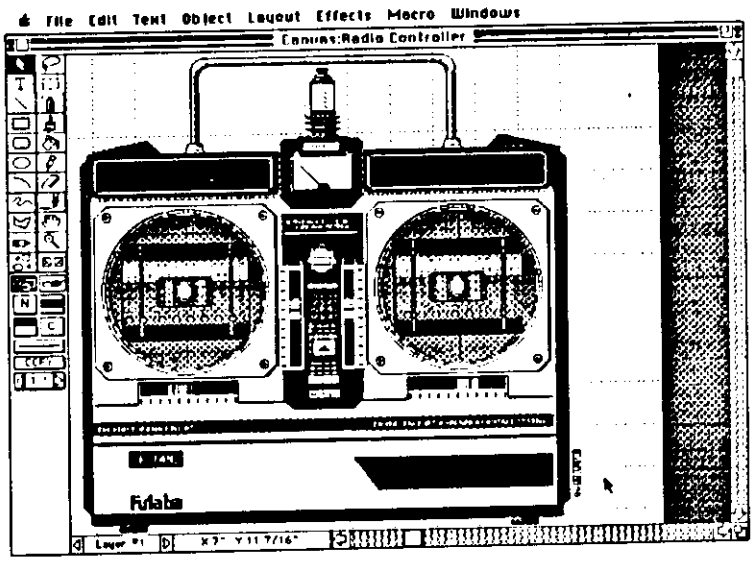
Copy ⌘C

The *Copy* command will move a copy of the selected object, groups of objects or selected area of your illustration into the Clipboard, but it will not remove it from your document. The selection will remain in the Clipboard until the next time that you use the *Cut* or *Copy* commands.

USER TIP *USE THE COPY COMMAND WHEN YOU WANT TO REPEAT THE SELECTION BY COPYING IT AND THEN PASTING IT SOMEWHERE ELSE IN YOUR CURRENT ILLUSTRATION, INTO ANOTHER ILLUSTRATION OR INTO THE SCRAPBOOK.*

Paste ⌘V

Paste will insert the contents of the Clipboard into your illustration. However, the *Paste* command will not work if the Clipboard is empty.



When you paste an image into your illustration, it remains selected so that you can move it into position. Once it is properly aligned, click outside of the dotted image area to drop it into your illustration.

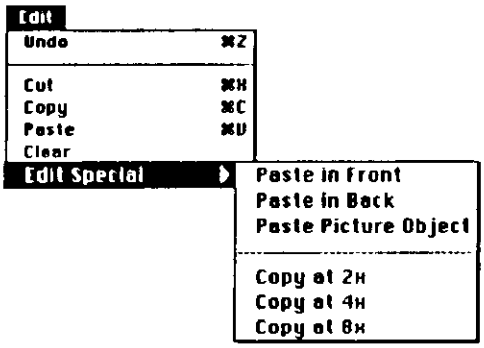
USER TIP *SELECTIONS ARE PASTED INTO AN ILLUSTRATION AT THE CURRENT CANVAS MAGNIFICATION LEVEL, REGARDLESS OF WHAT THE IMAGE'S MAGNIFICATION LEVEL WAS WHEN IT WAS CUT OR COPIED. THEREFORE, FOR PRECISE ALIGNMENT, IT IS RECOMMENDED THAT YOU INCREASE THE MAGNIFICATION LEVEL.*

Clear

The *Clear* command will remove any selected object, groups of objects or selected area from your illustration, but it will not save it to the Clipboard.

USER TIP *YOU CAN ALSO CLEAR A SELECTION FROM YOUR ILLUSTRATION BY PRESSING THE DELETE OR BACKSPACE KEYS.*

Edit Special



The *Edit Special* command allows you to specify where you want to insert the Clipboard's contents. When selected, Canvas will display your options, as long as you keep the mouse button depressed. Drag the mouse over your selection to:

- Paste the contents of the Clipboard in front of the selected object(s) in your illustration - provided one or more objects are selected (otherwise dim).
- Paste the contents of the Clipboard behind the selected object(s) in your illustration - provided one or more objects are selected (otherwise dim).
- Paste the *Picture Object* from the Clipboard (like *PixelPaint* graphics) in your illustration as a PICT.
- Copy at 2X, 4X, or 8X places the selected object into the Clipboard at the specified magnification level for output to page layout programs: 2X is representative of the ImageWriter II's resolution; 4X is representative of the LaserWriter's resolution level; 8X is representative of the Linotronic's resolution output. Each magnification level displays WYSIWYG (*What You See Is What You Get*) for the designated output device.

Select All ⌘A

Select All will select all of the objects that are present in the active layer of your Canvas illustration.

Duplicate ⌘D

The *Duplicate* command copies all of the selected objects in a layer and immediately pastes the copy, now selected, in the same layer with a slight offset to the right and below the original.

USER TIP *THIS COMMAND IS USEFUL FOR MAKING AN EXACT COPY OF ONE OBJECT OR GROUP OF OBJECTS. IF YOU WANT TO MAKE ONE OR MORE COPIES AND YOU WANT TO INCORPORATE SPECIFIC MODIFICATIONS IN THE COPY, SELECT THE* **DUPLICATION...** *COMMAND.*

Duplication... ⌘W

The *Duplication Manager* provides a number of convenient options which can be simultaneously applied to subsequent copies of a selected object. From the *Duplication Manager* dialog box, Canvas allows you to duplicate the selected object up to the memory capacity of your computer. You can rotate successive copies of the selected object in 1 degree increments, while also choosing the center of rotation. You can individually specify an offset for each successive copy from $^{1}/_{10,000}$ of an inch on either

Number of Copies
Enter the number of copies to be simultaneously duplicated

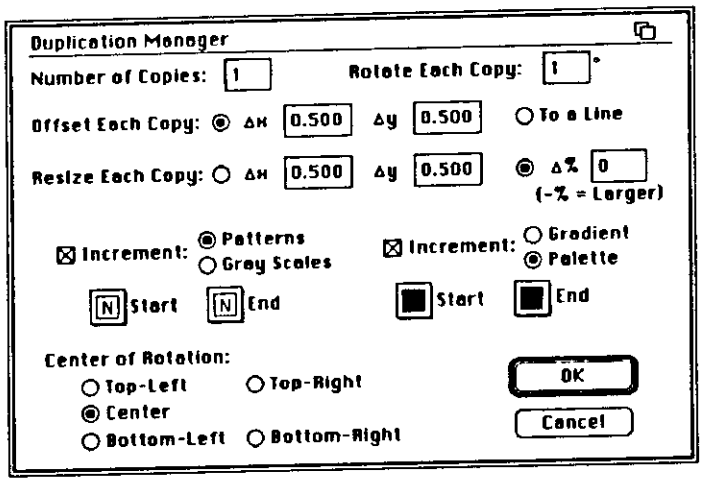
Rotate Each Copy
Enter the number of degrees to rotate each successive duplicate

Offset Each Copy
Enter values for the x-axis (vertical) and y-axis (horizontal) or specify this offset to a line

Resize Each Copy
Enter values for the x-axis (vertical) and y-axis (horizontal) or specify a percentage of enlargement or reduction (-%)

Increment
Allows you to select multiple fill patterns for your duplicated objects

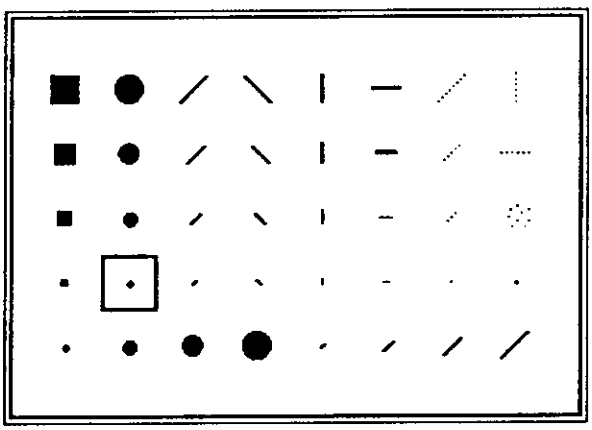
Center of Rotation
Allows you to specify the point at which the rotation will occur



the *X-Axis (horizontal)* or the *Y-Axis (vertical)*, or simultaneously offset both *X* and *Y-Axis*, or you can specify an offset to an imaginary line. Additionally, the *Duplication Manager* allows you to simultaneously change the *Fill Pattern* or *Gray Scale* level. On a Macintosh II with an expanded video card, you can change the color of successive duplicates by selecting a *start* and an *end* color *Gradient*. Canvas will then automatically duplicate the selected object with all the *shades of colors* between the selected *start* and *end* colors for the number of duplications specified. Or, on any Macintosh, if you choose the *Increment Palette* option, Canvas will display all of the colors in the color *palette* between the selected *start* and *end* colors. The possible combinations of options available with the *Duplication Manager* are limitless. To use the *Duplication Manager:* select an object with the *Arrow* tool; choose the ***Duplication Manager*** (⌘-*W*) from the *Edit* menu. Enter the desired duplication parameters, then click *OK* or press *Return* to duplicate the object.

Brush Shapes

Canvas allows you to choose the shape of the ***Paint Brush*** tool from this menu option. Doing so will reveal the following dialog box:



You can change the shape of the ***Paint Brush***: select ***Brush Shapes*** from the ***Edit*** menu; click the mouse on your choice of ***Paint Brush*** shapes. Canvas automatically changes the shape of the ***Paint Brush*** and saves your change for future use.

Brush Editor...

Brush Editor... gives you the power to customize your own *Paint Brush* tools. Canvas comes with 32 pre-defined Paint Brush *tips*. In addition to these, Canvas has provisions for up to 8 user defined brush *tips*. The ***Brush Editor...*** dialog allows you to edit any of the user brush shapes.

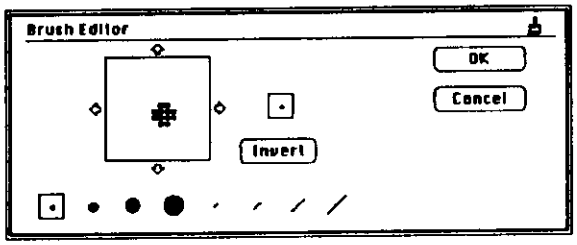
Shift Arrows
Moves your brush shape in the direction of the arrow

Editor Window
Click to create custom brushes

Invert
Reverses the brush shape in the Editor Window

Screen Representation
Displays the actual screen representation of your brush shape

Brush Shapes
Highlighted brush indicates the shape in the Editor Window



USER TIP *THE MORE "BRISTLES" (DISJOINTED AREAS) THAT A BRUSH HAS, THE SLOWER IT WILL PAINT.*

Creating New Brushes

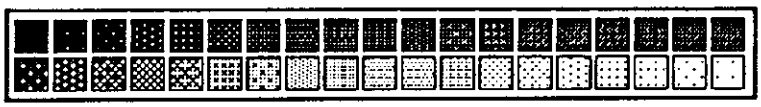
To edit the shape of the user editable brushes: select ***Brush Editor...*** from the ***Edit*** Menu; then, click on one of the basic shapes: ⊡ • ● ● · · / / Your selection appears in the *editor window*. Click the pencil on the blocks you wish to modify. If you click on a black dot, it turns white. If it was white, then clicking on it turns it black. Every time you change the state of any of the dots, the actual size representation to the right of the *editor window*, reflects the change. Use the *shift arrows* around the edge of the *editor window* to move the selected shape in the chosen direction. When you are satisfied with the shape of your brush, click in the actual size representation. If, at any time, you want to start over, just select a new pattern again and start over.

The *Invert* button reverses all of the blocks within the *editor window* immediately. Click the "*OK*" button to save your brush and exit the Editor or "*Cancel*" to exit without saving.

Patterns...

The *Patterns...* command gives you the power to create custom fill and pen patterns for your Canvas illustration. Canvas comes with 76 preset patterns. Through the use of the *Pattern Manager*, you can create an additional 38 patterns, for a total of 114 patterns.

Patterns are stored on *palettes*, with 38 different patterns on each palette.



Use the *Patterns...* command to: select the active pattern palette, edit existing patterns, create new patterns and manage which palette will contain which pattern
You can select the active Canvas palette simply by clicking on the radio button to the left of the palette. Every time that you change the active palette, the pen and pattern pop-up menus will reflect this change.

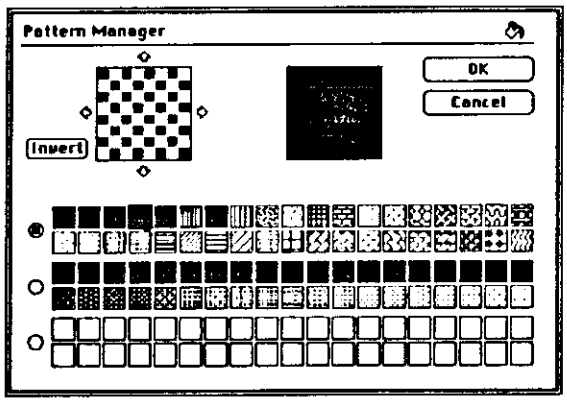
Shift Arrow
Moves your pattern in the direction of the arrow

Pattern Editor Window
Click to create custom patterns

Invert
Reverses the pattern in the Pattern Editor Window

Screen Representation
Displays the actual screen representation of your pattern

Pattern Palettes
Highlighted palette indicates the active Canvas pattern palette
Selected pattern appears in the Pattern Editor Window



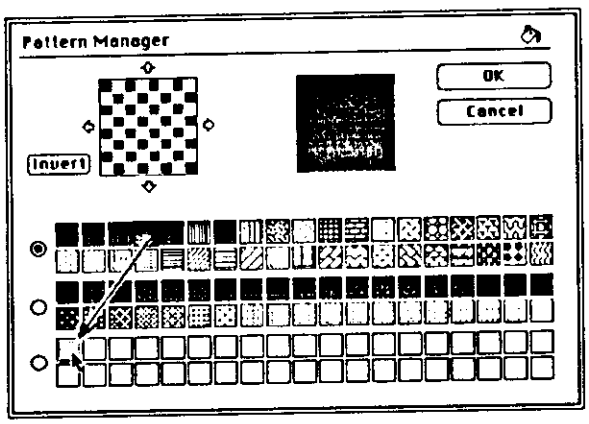
Creating New Patterns

The *Pattern Manager* allows you to edit existing patterns: click inside the rectangle of the pattern that you wish to edit; a magnified view of the pattern will appear in the *Pattern Editor Window*. If you click on a white dot in the *Pattern Editor Window*, it turns black. If you click on a black dot, it will turn white. Every time that you change the state of any of the dots, the actual size *Screen Representation Window* will reflect this change. Use the *Shift Arrows* to move your new pattern around the *Pattern Editor* in the selected direction.

USER TIP *ANYTIME THAT YOU WANT TO START THE EDITING PROCESS OVER AGAIN, SIMPLY RESELECT THE PATTERN FROM THE PALETTE AND YOU CAN BEGIN AGAIN.*

Creating Custom Palettes

Canvas also allows you to create a custom palette, with either pre-defined patterns from another palette, or with custom patterns that you design. To create a custom palette: select the empty palette by clicking on the radio button on the left side of the palette. Next, add pre-defined patterns from another palette: select the pattern by clicking inside that pattern's square. Drag the selected pattern square into an empty square in your custom palette. Click in the *Screen Representation Window* to save your new pattern.



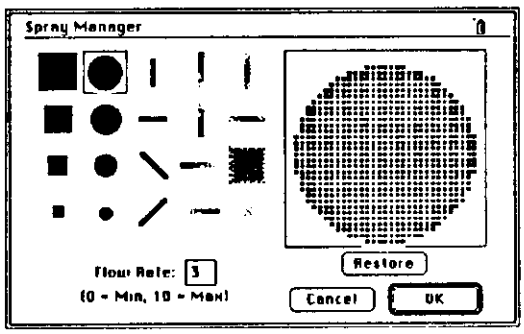
Adding Custom Patterns

To add a new pattern to your custom palette: click inside an empty square of the new palette; a magnified view of the empty square will appear in the *Pattern Editor Window*. Clicking on a white dot turns it black and visa versa. Every time that you change the state of any of the dots the actual size *Screen Representation Window* will reflect this change. Use the *Shift Arrows* to move your new pattern around the *Pattern Editor* in the selected direction. Click in the *Screen Representation Window* to save your new pattern.

USER TIP *IT IS RECOMMENDED THAT YOU STORE ALL NEW AND/OR EDITED PATTERNS IN THE THIRD, EMPTY, PALETTE.*

Spray...

The *Spray...* command allows you to control the shape of the nozzle used by the Spray Can to apply its paint, as well as the rate of flow with which it paints.



Nozzle Editor Window
Shows an enlarged display of the Spray Can Nozzle

Pre-defined Nozzles
Select from 20 flow patterns

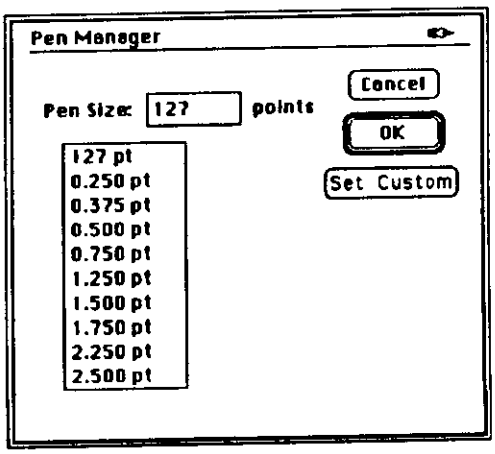
Flow Rate
Controls the flow of paint

Restore
Returns the nozzle to its original settings

To edit the Spray Can's Nozzle: choose one of the 20 pre-defined Nozzle Patterns. Clicking on a white dot turns it black and visa versa. When you are satisfied with your nozzle, click on the OK button to save your changes. Click the Cancel button to exit the Spray Nozzle Editor without saving your changes. If you want to return to the standard nozzle shape, click the Restore button. The rate of paint flow can be adjusted from 0 to 10. Zero allows the spray can to leave one short burst of paint until you move the mouse. The higher the number, the greater the flow rate without moving the mouse.

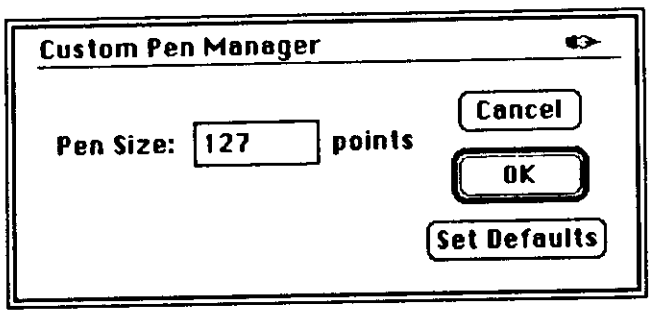
Pens...

The *Pen Manager* gives you control to set custom *default* pen sizes as large as 127 points or as narrow as $^{1}/_{18,000}$ of an inch. You can also set a pen size to zero and draw objects without outlines. When you choose the ***Pens...*** option from the ***Edit*** menu, the following dialog is displayed:



The *Pen Size* window shows the current pen sizes, which appear in the *pen menu*. You can select a pre-set size from the *pen menu* or specify a custom pen size by typing a number in the *Pen Size* window. Canvas automatically updates the *pen menu* and the ***Pen Shape Manager*** in the ***Tool Box*** to include the new pen size when you click "OK."

You can select the *Custom* option from the ***Pen Shape Manager*** in the ***Tool Box***, to display the *Custom Pen Manager*.



Arrows...

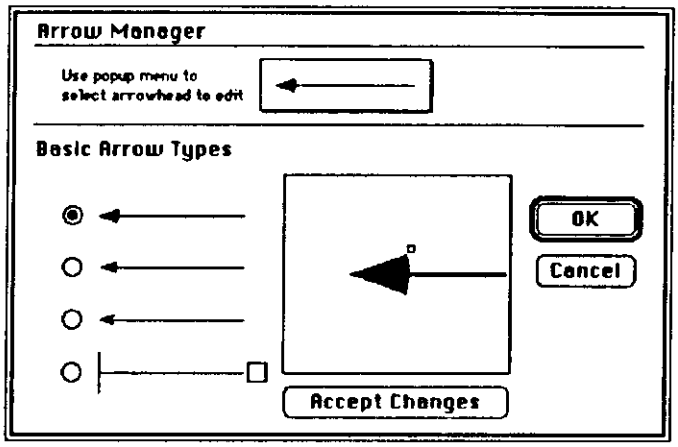
Arrowhead Editor
Pop Up menu selector

Basic Arrow Selections
Arrowhead collection

Accept Changes
Saves modifications to an Arrowhead and adds it to the Manager

Arrowhead Editor Window
Displays the modifications on an Arrowhead

Canvas features 6 different styles of arrowheads and line terminators. Arrowheads may be placed on both lines and arcs. Each arrowhead can be customized by the user through the use of the *Arrow Manager*.



To select a pre-set arrow or line terminator, click on one of the *Basic Arrow Types* buttons. You can use the arrowheads or line terminators as they are, or you can edit them in the *Arrowhead Editor Window*. When you select the arrowhead to edit from the hierarchical pop-up *Arrowhead Editor* icon, the arrowhead appears in the *Arrowhead Editor Window*.

To edit an arrowhead or line terminator:

- select the arrowhead or line terminator from the *Arrowhead Editor*
- drag the handle(s) to modify the size and width
- click *Accept Changes* to *Save* the new arrowhead and add it to the *Arrow Manager*
- click "*OK*" to save your arrowhead and close the *Arrowhead Manager* or *Cancel* if you change your mind.

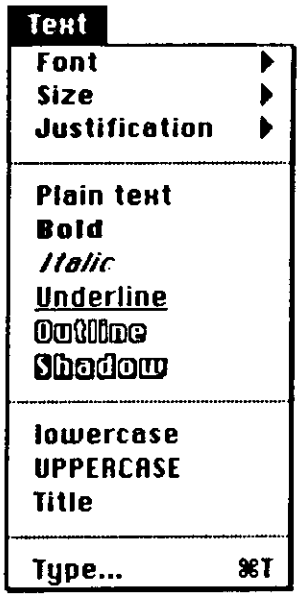
Although the arrows in the *Arrow Manager* appear as left-pointing, Canvas uses the same style as the selected arrow to create arrowheads pointing in any direction. Canvas automatically adjusts the size of the arrowhead to match the width of a selected line or arc, or the current pen size.

Colors...

The *Colors...* command from the ***Edit*** menu is only visible on Macintosh II computers with any expanded video card, including 24-bit video cards. Through the *Color Manager* dialog, Canvas provides a powerful means of supporting the 16.7 million color QuickDraw capabilities of the Macintosh II. Colors may be applied to objects, bitmaps or text, from a palette of 256 colors. Canvas can print in full color on any color compatible printer, including slide printers.

Refer to the *Color SUPPLEMENT* section of this manual for a detailed description of the color capabilities of the program.

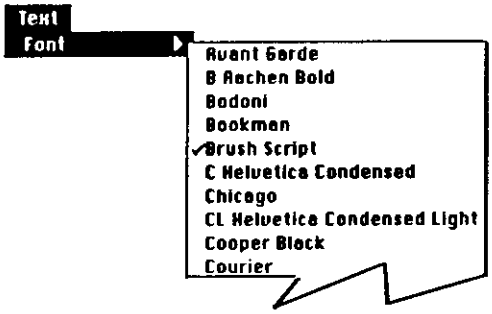
About the Text Menu



When you first start Canvas, the default text font, size and style will be read from the *Canvas Prefs* file, located in your System Folder. All options in the ***Text*** menu apply to text contained in either a text object or typed inside a paint object. With Canvas, you can change the font type (Geneva, Chicago, etc.), font style (plain, bold, italic, etc.) or the size of even a single character of text at a time. This ability is called WYSIWYG or *"What You See Is What You Get"* text editing.

USER TIP *WHEN YOU ARE WORKING WITH A PAINT OBJECT, YOU MUST MAKE ALL CHANGES TO YOUR TEXT BEFORE YOU CLICK THE MOUSE OUTSIDE THE BOUNDARIES OF THE TEXT JUST ENTERED. ONCE THIS IS DONE, THE TEXT IS, IN EFFECT, "PASTED DOWN" INTO THE PAINT OBJECT AND BECOMES JUST A COLLECTION OF DOTS.*

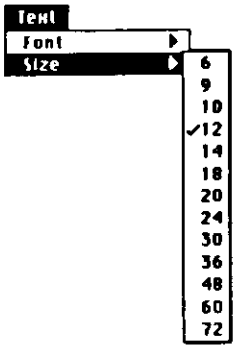
Font



The ***Font*** menu command contains the names of all fonts that are currently installed in your System. This menu option is hierarchical - to select a font:

- hold the mouse button down and simultaneously
- drag the mouse to the right and the font list will be displayed
- continue to drag the mouse as you scroll through the list of fonts to make a selection
- release the mouse button when your selection is highlighted
- Canvas will place a ✓ to the left of your choice.

Size

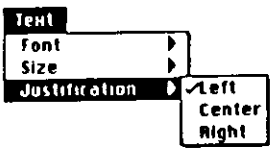


The *Size* option of the ***Text*** menu lets you select from several popular text sizes. Canvas predefines type sizes from 6 to 72 points. You can, however, define a point size up to 127 points by using the ***Type...*** (⌘-T) option in this menu. This menu option is hierarchical - to select a type size:

- hold the mouse button down and simultaneously
- drag the mouse to the right and the *Size* list will be displayed
- continue to drag the mouse as you scroll through the list to select your size
- release the mouse button when your selection is highlighted
- Canvas will place a ✓ to the left of your choice.

This is an example of 8 Point Type
This is an example of 10 Point Type
This is an example of 12 Point Type
This is an example of 14 Point Type
This is an example of 18 Point

Justification



You can change the ***Justification*** of any caption or text object. Text justification is based on the object rectangle in which you create the text. The default setting is "left justification." Canvas allows you to "center" or "right" justify your text.

This is an example of Left Justification
This is an example of Center Justification
This is an example of Right Justification

To justify your text:

- hold the mouse button down and simultaneously
- drag the mouse to the right and the ***Justification*** options list will be displayed
- continue to drag the mouse as you scroll through the list to make your selection
- release the mouse button when your selection is highlighted
- Canvas will place a ✓ to the left of your choice.

Style

You can change the ***Style*** of any portion of your text object by simply highlighting it with the mouse and choosing the desired style from the ***Text*** menu. Plus, you can combine any of these styles in a text object by making multiple style selections on the same portion of text. The "Plain text" option will cancel all style selections in the text object.

This is an example of Plain Text.

This is an example of Bold Text.

This is an example of Italics Text.

This is an example of Underline Text.

This is an example of Outline Text.

This is an example of Shadow Text.

USER TIP *WHEN YOU ARE WORKING WITH A PAINT OBJECT, YOU MUST MAKE ALL CHANGES TO YOUR TEXT BEFORE YOU CLICK THE MOUSE OUTSIDE THE BOUNDARIES OF THE TEXT JUST ENTERED. ONCE THIS IS DONE, THE TEXT IS, IN EFFECT, "PASTED DOWN" INTO THE PAINT OBJECT AND BECOMES JUST A COLLECTION OF DOTS.*

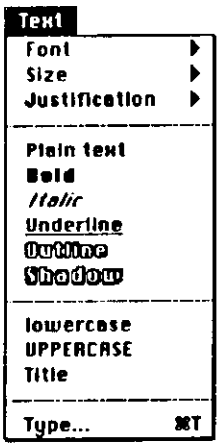
Case

You can simultaneously change the *Case* of the entire text object by simply highlighting it with the mouse and choosing the desired case from the *Text* menu.

this is an example of lower case.
THIS IS AN EXAMPLE OF UPPER CASE.
This Is An Example Of Title Case.

USER TIP *WHEN YOU ARE WORKING WITH A PAINT OBJECT, YOU MUST MAKE ALL CHANGES TO YOUR TEXT BEFORE YOU CLICK THE MOUSE OUTSIDE THE BOUNDARIES OF THE TEXT JUST ENTERED. ONCE THIS IS DONE, THE TEXT IS, IN EFFECT, "PASTED DOWN" INTO THE PAINT OBJECT AND BECOMES JUST A COLLECTION OF DOTS.*

Type... ⌘T



The *Type...* option displays a dialog that combines most of the available options from the *Text* menu in one place. Making your selections from this dialog box is equivalent to making an individual selection from one of the other *Text* menu options.

USER TIP *THIS DIALOG IS USEFUL IF YOU WANT TO SPECIFY A FONT SIZE THAT IS NOT ACCESSIBLE THROUGH THE MENU. CANVAS ALLOWS YOU TO SELECT A FONT'S POINT SIZE UP TO 127 POINTS.*

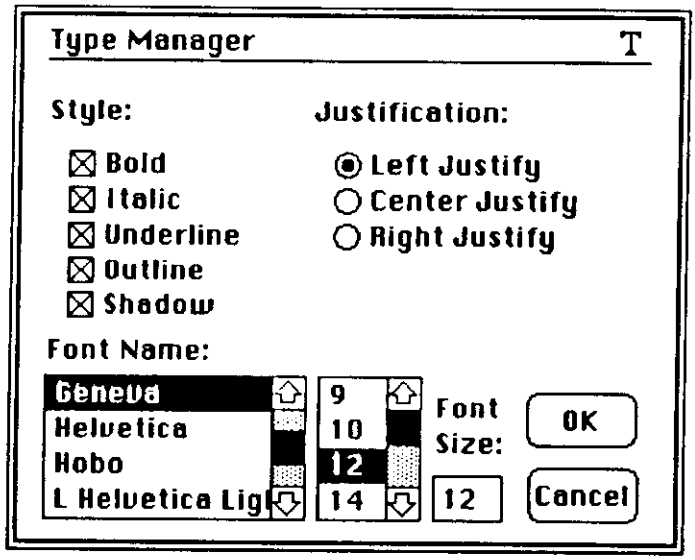
Style Selections
Click on any one or combination of styles for the highlighted text in a text object

Text Justification
Choose one justification mode for a text object

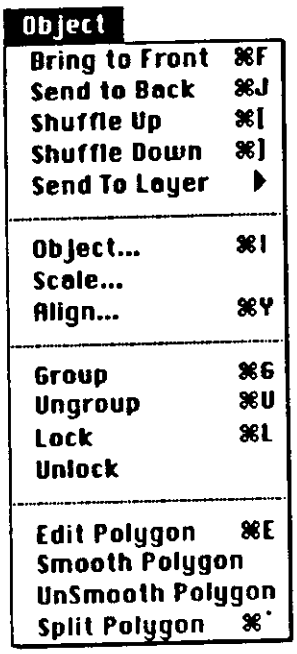
Font Names
List all the fonts installed in your System which are available for your text object - scroll through the list and click the mouse on the name of the font you wish to use

Predefined Point Size Window
Allows you to scroll through a list of font sizes - click the mouse on your size choice to select it

Custom Point Size Window
Type in any point size up to 127 points for any text in your text object



About the Object Menu



The *Object* menu contains options that affect the state of individual objects or groups of objects in a layer of your illustration. Here you can rearrange the order of your objects as they stack up on top of each other with the shuffle commands. The *Object Specs* option gives you the power to modify multiple characteristics of an object or group of objects at the same time. You can *Group* or *Ungroup* objects, while Locking objects from future modification. *Align Objects* provides 12 separate modes of object alignment. The *Edit Polygon* option lets you reshape an existing polygon, while the *Smooth* option rounds the corners of an existing shape.

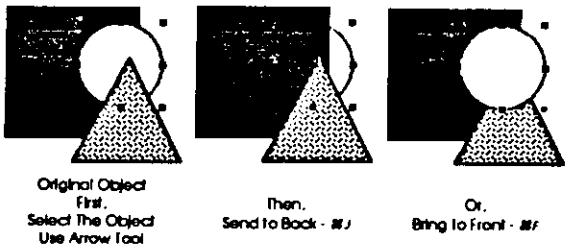
Bring to Front ⌘F

Send to Back ⌘J

Objects in Canvas can overlap, much like the windows on your Macintosh. Whenever you draw a new object, it is placed on top of all other objects in that layer of your document. By arranging objects on top of each other, you can combine many simple objects to produce extremely complex illustrations. The *Bring to Front* and *Send to Back* commands are used to rearrange the stacking order of objects in an illustration.

To move an object that is obscured:

- Click on the visible portion of the object using the *Arrow* cursor.
- Choose *Bring to Front* (⌘-F) and it will become the topmost object in your stack.
- Choose *Send to Back* (⌘-J) and it moves to the rear of your stack.



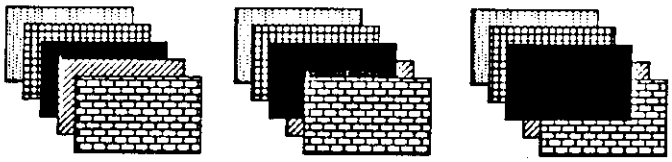
USER TIP *MANY INTERESTING EFFECTS CAN BE ACHIEVED USING THE SPECIAL TRANSFER MODES AVAILABLE IN THE CANVAS INK MANAGER. THE INK MANAGER MODIFIES THE WAY YOUR OBJECTS APPEAR ON THE SCREEN AND ARE PRINTED.* *REFER TO PAGE 3-86.*

Shuffle Up ⌘ (

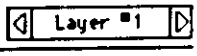
Shuffle Down ⌘)

If an object in your illustration is misplaced, you can move it between the intervening objects using the *Shuffle Up* (⌘-() or *Shuffle Down* (⌘-)) commands. These commands give you the flexibility to re-order a stack of objects.

- select the object to be re-ordered with the *Arrow* cursor.
- select either the *Shuffle Up* (⌘-() or *Shuffle Down* (⌘-))
  command, as appropriate, to move your object one object at a time in the direction of the command.



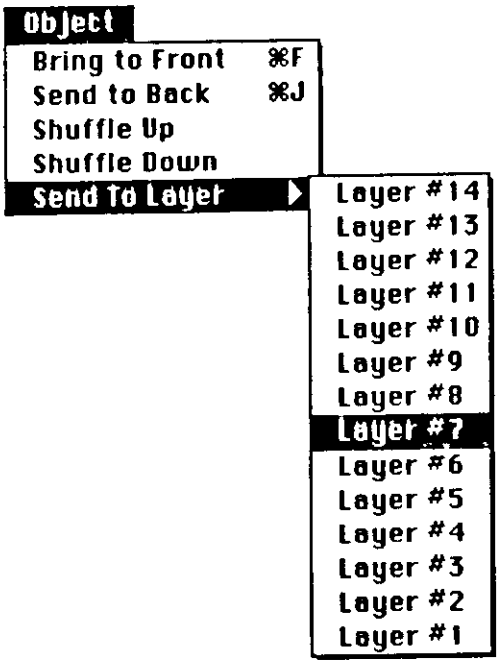
Send to Layer



The *Send To Layer* command is a hierarchical menu that will allow you to transfer a selected object or group of objects to another existing layer. *Send to Layer* displays a list of all layers in your illustration. Simply choose the layer that you wish to move your selection to.

To transfer an object or group of object to another layer in your illustration:

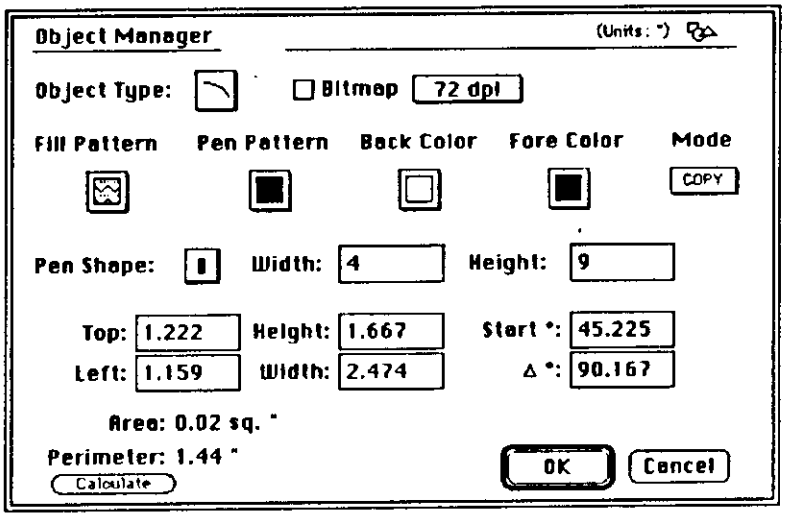
- Select the object or group of objects to be transferred to another layer with the *Arrow* cursor
- Press and hold the mouse button while you drag the mouse over the *Send To Layer* menu option, then
- Continue dragging the mouse to the right. Canvas will display a list of all existing layers.
- Drag the mouse down the list until the layer you want is highlighted.
- Release the mouse button when your selection is highlighted. Canvas will automatically move your selected object or group of object to the new layer.



Object... ⌘I

(SINGLE OBJECT SELECTED)

You access the *Object Manager* from the *Object...(⌘-I)* command in the *Object* menu. This dialog box is the *control center* of your object. From this dialog, you can convert a rectangle into a polygon, and visa versa. You can convert a draw object into a bitmap and add or change the fill or pen patterns of lines and shapes. Plus, you can access the background and foreground color managers, or the ink and pen shapes managers. You can precisely adjust the dimensions of any object by simply typing the new dimensions in the corresponding editing windows. Or, you can view the auto-dimensioning and area calculations for your object in this dialog.



The *Object Manager* dialog contains three types of *action items* for you to use: *check-boxes*, where you simply click the mouse button to *activate* the selection; pop-up menus beneath *shadow-boxed icons;* and *dialog windows*, where you type in an entry. To use the pop-up menus, press and hold the mouse button on one of the *shadow-boxed icons* and a hierarchical menu will be displayed. All selections made from these *icons* will be applied to the selected object.

Units:
Displays the measurement settings in the current Ruler

Object Type
Pop Up menu displays and allows modification to all of the Canvas objects

Bitmap
The Check-Box converts draw objects into paint objects; the Shadow-Box Icon displays a Pop Up menu for conversion resolutions up to 2540 dpi

Fill Pattern
Pop Up menu which displays the fill pattern palettes plus a gray scale selection bar in 1° increments

Pen Patterns
Pop Up menu of the pattern palettes

Back Color
Pop Up menu of the background color palette with up to 256 colors

Fore Color
Pop Up menu of the foreground color palette with up to 256 colors

Mode
Pop Up menu of the 6 transformation modes for copying objects

Pen Shape
Pop Up menu with 101 pre-defined shapes or custom sizes up to 127 points

Auto Dimensioning
Dialog windows which display and edit the Shape and Boundary of the selected object

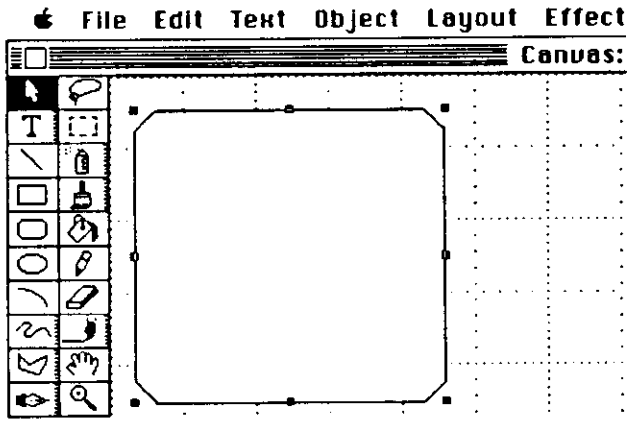
Area: & Perimeter:
Dialogs which automatically display the total area and perimeter of the selected object

Calculate
Button to calculate the Area and Perimeter information for Freeforms, Polygons and Bezier Curves

Converting An Object From One Type To Another

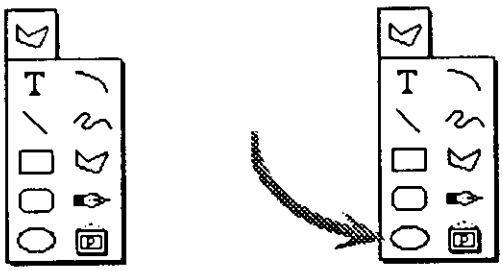
The *Object Type* dialog displays the current type of Canvas object that you have selected.

You can change the object type into *any other* object type. For example, the *Object Type* icon shown above indicates that the selected object is a polygon:

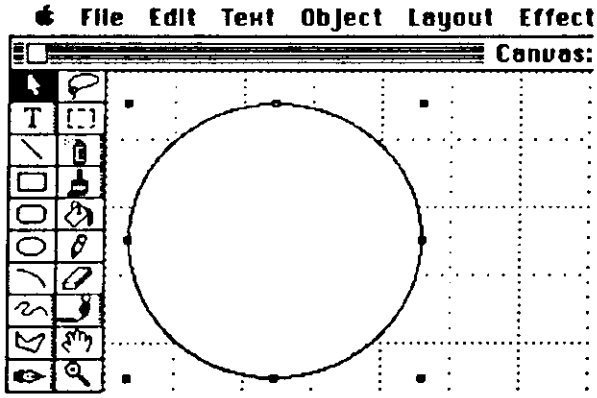


To convert the polygon to a circle:

- **Select the object with the *Arrow* cursor.**
- **Select *Object...* from the *Object* menu or type ⌘-*I*.**
- **Press the mouse button on the *Object Type* icon.** The pop-up menu below, on the left, appears:



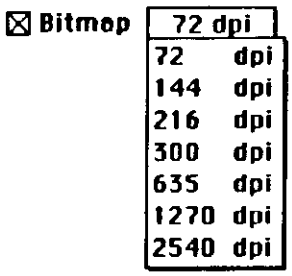
- **Drag the mouse down until the cursor encloses the *Rectangle* selection and release the mouse button.**
- **Click the *OK* button or press *Return* to close the dialog and save your modification.**



The object has been converted from polygon to a circle. You can double-check the conversion by re-selecting *Object...* from the *Object* menu or typing ⌘-I.

Converting A Draw Object Into A Bitmap Object

The *Bitmap* selection converts a draw object into a paint (*bitmap*) object by using a *pop-up menu* for choosing the bitmap's resolution and a *check box*, to enable the conversion.



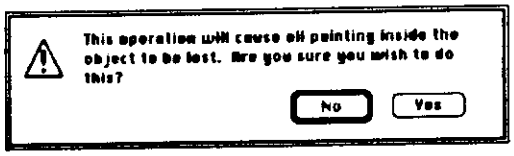
To convert the draw object into a paint (*bitmap*) object:

- **Select the object with the *Arrow* cursor.**
- **Select *Object...* from the *Object* menu or type ⌘-I.**
- **Press the mouse button on the *Bitmap Resolution* icon.** The pop-up menu above appears:
- **Drag the mouse down until the desired resolution is highlighted and release the mouse button.**

Notice that your selection is displayed in the icon window.

- **Click the *Check Box* (an X will appear).**
- **Click the *OK* button or press *Return* to close the dialog and save your modification.**

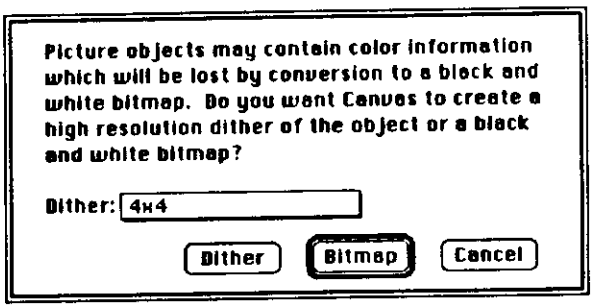
USER TIP *CONVERTING A BITMAP BACK INTO A DRAW OBJECT WILL CAUSE ALL OF THE PAINTING INSIDE THE OBJECT TO BE LOST. CANVAS DISPLAYS A WARNING DIALOG TO ALERT YOU TO THIS.*



USER TIP *THE MOST POPULAR RESOLUTION IS 72 DPI, WHICH CORRESPONDS TO THE MACINTOSH SCREEN AND TO "PAINT ONLY" TYPE PROGRAMS, LIKE MACPAINT. THE SECOND MOST POPULAR DENSITY IS 300 DPI, WHICH CORRESPONDS TO THE OUTPUT RESOLUTION OF MOST POPULAR LASERWRITERS AND IMAGE SCANNERS.*

Creating Halftones or Dithers From Picture Objects
(MACINTOSH II ONLY)

A unique feature, available *only* on a Macintosh II, is the Canvas *"Bitmap* conversion." This feature is used in conjunction with *Picture Objects,* allowing Canvas to create "*halftone*" or "*dither*" images of any *Picture Object* that has been pasted into the *Canvas Window.* This feature will allow a Macintosh II to print color or gray-scale pictures on a black-and-white device. With a *Picture Object* selected, clicking the *Bitmap* check box and pressing the "*OK*" button will display the following dialog:


Picture objects may contain color information which will be lost by conversion to a black and white bitmap. Do you want Canvas to create a high resolution dither of the object or a black and white bitmap?
Dither: 4x4
Dither
Bitmap
Cancel

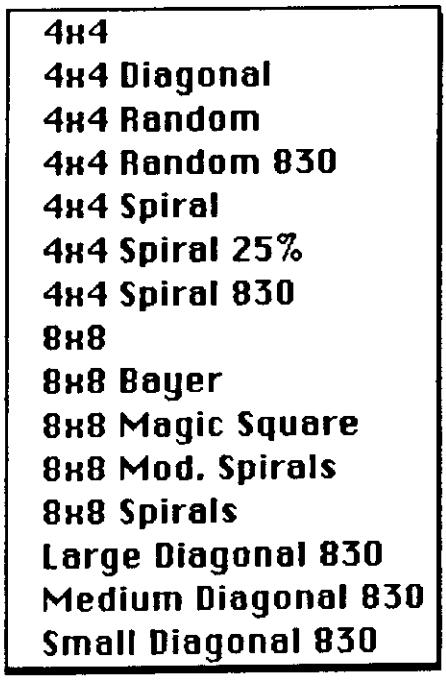
Picture Objects, such as scanned photographic images, are made up of continuous tones ranging from black to white. In order to print this broad range of gray-scales. commercial printers developed a printing technique know as "*halftoning*" or "*dithering*." This technique simulates the shades of gray with an array of black dots arranged in different patterns and sizes. Once printed, the larger dots appear blacker, and the smaller dots appear lighter. All of the dots are small enough so that when they are printed, they appear as shades of gray.

Canvas uses dot patterns that simulate the effects of "*halftoning*" or "*dithering*." In Canvas, the dots are composed of matrixes of smaller dots, known as "*printer dots*." The larger the matrix of dots, the fewer the number of "*printer dots*" that can fit into each square inch of the *Picture Object*. An "8x8" (8-dot by 8-dot) matrix of "*printer dots*" capable of representing 65 shades of gray (64 gray scale levels plus white), is much larger than a "4x4" (4-dot by 4-dot) matrix, which only represents 17 shades of gray (16 gray scale levels plus white). Since each matrix represents the gray-scale level of one pixel of the *Picture Object*, the larger the matrix (the more levels of gray-scales represented), the lower the resolution (pixels per inch) of the *Picture Object*.

To create a *halftone* or *dither* of a *Picture Object:*

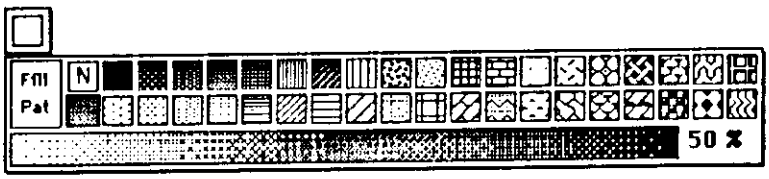
- **Select the *Picture Object* with the *Arrow* cursor.**
- **Select *Object...* from the *Object* menu or type ⌘-I.**
- **Press the mouse button on the *Dither: 4x4* icon.**
- **Drag the mouse down the hierarchical menu to select the desired dither pattern.** Each dither pattern and matrix size will produce different effects. You may want to experiment with the various choices until the desired effect is achieved.
- **Click on the *Dither* button to create a "*halftone.*"**

Canvas provides fifteen (15) different "*halftone*" or "*dither*" options from which to select a *dithering matrix* and *pattern*:



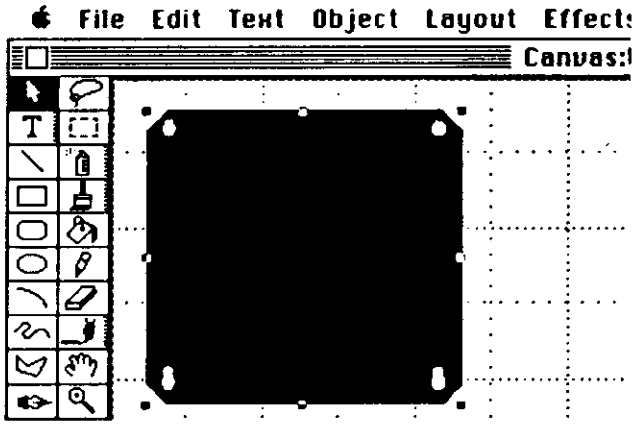
Modifying The Fill Pattern Of An Object

The *Fill Pattern* option opens the ***Fill Pattern Manager*** in the ***Tool Box***. It provides direct access to all of patterns and gray scales that can be used to fill the interior area of an object. (The *Fill Pattern* option also determines the pattern used by the ***Paint Bucket*** tool, as well as the ***Fill*** special effect in the ***Effects*** menu.) The current fill pattern is always shown in the *Fill Pattern's* icon.



To change the fill pattern of the selected object :

- **Press and hold the mouse button on the *Fill Pattern* icon.**
- **Drag the mouse across the desired fill pattern icon or across the gray scale selector.** When you drag the mouse across the gray scale selector, a percentage of gray scale will be displayed to the right of the palette.



- **Release the mouse button.** The fill pattern or gray scale will be applied to the selected object.
- **Click the *OK* button or press *Return* to close the dialog and save your modification.**

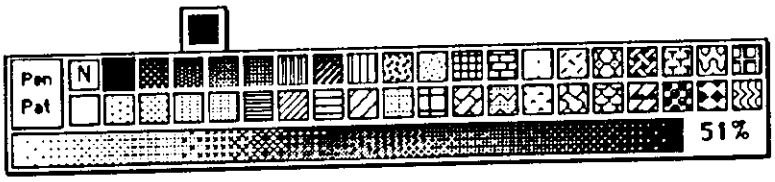
Using The Multiplex Options Of The Fill Pattern Manager

The *Object Manager* also provides access to the ***Multiplex*** options of the ***Fill Pattern Manager.*** You can change *Fill Pattern* palettes by using the *Command* or *Option* modifier keys as you open the icon by:

- **Pressing the *Shift* key while opening the icon displays the First Palette**
- **Pressing the *Command* key while opening the icon displays the Secondary Palette**
- **Pressing the *Option* key while opening the icon displays the User Palette**

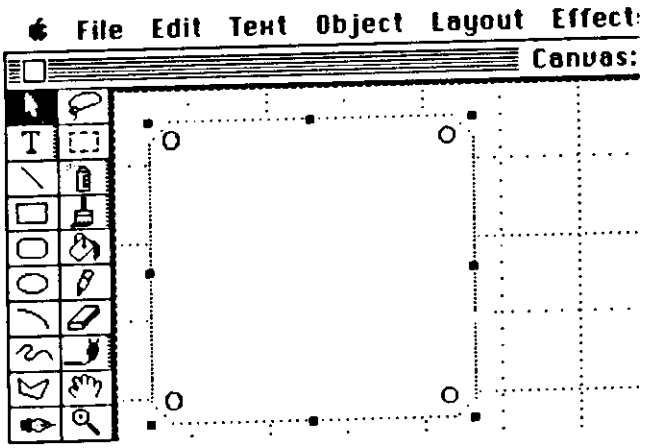
Changing The Pen Pattern Of An Object

Like the *Fill Pattern* icon, the *Pen Pattern* option gives you the choice of patterns or gray scales for the lines or borders around the selected object. (It also determines the pattern used by the ***Spray Can*** and ***Paint Brush*** paint tools.) The current pen pattern is always shown in the ***Pen Pattern*** icon.



To change the *Pen Pattern* of the selected object:

- **Press and hold the mouse button on the *Pen Pattern* icon.**
- **Drag the mouse across the desired pen pattern icon or across the gray scale selector.** When you drag the mouse across the gray scale selector, a percentage of gray scale will be displayed to the right of the palette.



- **Release the mouse button.** The pen pattern or gray scale will be applied to the selected object.
- **Click the *OK* button or press *Return* to close the dialog and save your modification.**

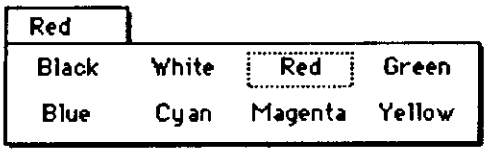
Using The Multiplex Options Of The Pen Pattern Manager

Just as you learned with *Fill Patterns*. the *Object Manager* also provides access to the ***Multiplex*** options for the ***Pen Pattern Manager.*** You can change *Pen Pattern* palettes by using the *Command* or *Option* modifier keys as you open the icon by:

- **Pressing the *Shift* key while opening the icon displays the First Palette**
- **Pressing the *Command* key while opening the icon displays the Secondary Palette**
- **Pressing the *Option* key while opening the icon displays the User Palette**

Changing The Background Or Foreground Colors Of An Object

The *Object Manager* dialog gives you the capability to change both the ***Background*** and ***Foreground*** colors used to draw the selected object. Canvas automatically recognizes the color capabilities of your Macintosh, and will display its color palettes accordingly.



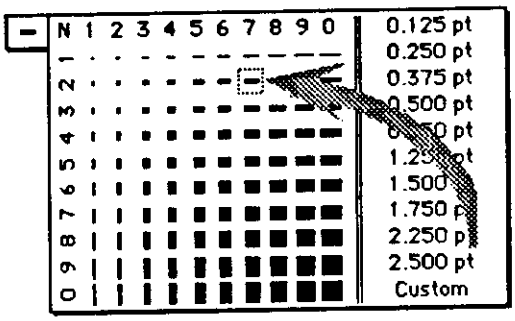
Standard Macintosh computers will display an 8 color palette from which you can choose your Background or Foreground colors. Macintosh II computers with an expanded video card will display a palette of 256 colors or levels of gray. To change the ***Background*** or ***Foreground*** colors of the selected object:

- **Press and hold the mouse button on the *Background* or *Foreground* color icon.**
- **Drag the mouse to the desired color icon**
- **Release the mouse button.** This color will be applied to the selected object and to the current default setting.
- **Click the *OK* button or press *Return* to close the dialog and save your modification.**

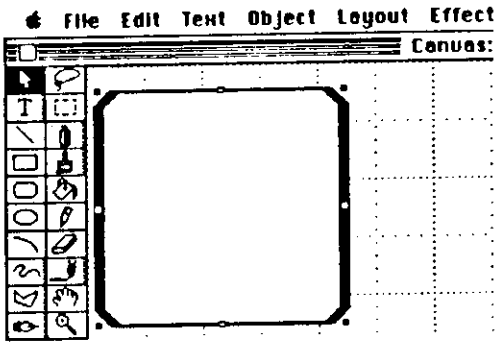
Modifying The Pen Shape Of An Object

The *Pen Shape* icon displays the shape of the pen used for drawing the selected object. Canvas provides 101 pre-defined pen shapes. It also provides an unlimited number of custom shapes up to 127 points. Custom shapes are displayed in the *Pen Shape* icon by a "C" in the icon's window. You can modify the shape of the pen used to draw the selected object by choosing a pre-defined pen shape from the icon or you can type a customized shape directly into the *Editor Panel*. To change the pen shape of the selected object to a pre-defined *Pen Shape*:

- **Press and hold the mouse button on the *Pen Shape* icon.**
- **Drag the mouse to the desired pen shape.**



- **Release the mouse button.** The new pen shape will be applied to the selected object.

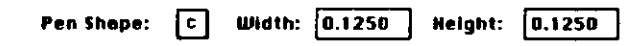


- **Click the *OK* button or press *Return* to close the dialog and save your modification.**

Creating Custom Pen Shapes

To create a custom *Pen Shape* in the *Object Manager:*

- **Type any value from .01 to 127 in *Width* block of the *Pen Shape Editor.***
- **Use the *Tab* key to move between blocks.**
- **Type any value from .01 to 127 in *Height* block of the *Pen Shape Editor.***

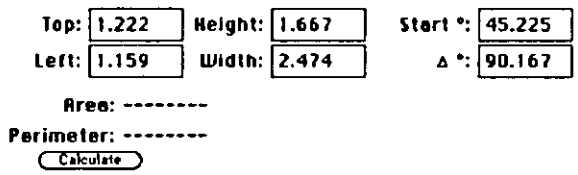


- **Click the *OK* button or press *Return* to close the dialog and save your modification.**

USER TIP *POSTSCRIPT PRINTERS, LIKE THE LASERWRITER, DO NOT SUPPORT A PEN SHAPE WHERE ONE SIDE HAS NO WIDTH (ENTERING A VALUE OF "0"). THEREFORE, LINES OR OBJECTS OF THIS TYPE WILL NOT PRINT ON A POSTSCRIPT DEVICE.*

Changing The Location Or Size Of An Object

When you drew the selected object, the settings that were set in the *Rulers...* command of the ***Layout*** menu determined the measurements that are now displayed in the *Auto-Dimensioning* windows. You can modify the size, location or shape of the selected object by typing new values in these windows. The measurements appear in the units selected for the current ruler, such as inches, centimeters, meters, feet or miles, even if the current ruler is not displayed.



For expediency in calculating data, the *Area:* and *Perimeter:* dialogs automatically display the selected object's dimensions *except for* Bezier Curves with *more than 4 anchor points,* freeforms and smooth polygons with *more than 10 points,* or polygons with *more than 35 points,* in which case a *"Calculate"* button is displayed for your convenience.

To modify the selected object from the *Object Manager*:

- **Type any value from .00001 in *"Top"* window of the *Dimensioning Editor*.** This defines the distance from the top of the *Canvas Window* to the top of your object .
- **Use the *Tab* key to move between windows**
- **Continue to fill in the remaining windows:**
  - *"Left"* defines the distance from the left side of the *Canvas Window* to the object's left side;
  - *"Height"* defines the distance from the top of your object to the bottom;
  - *"Width"* defines distance from left to right;
  - *"Start"* and *"Delta"* define arc information, if applicable. If the selected object is a curve (including rounded corner rectangles) the display switches to *"Rad. H."* for the radial width of a curve, and *"Rad. V."* for the radial height of a curve.
- **Click the *OK* button or press *Return* to close the dialog and save your modification.**

USER TIP *The Area and Perimeter dialogs automatically display summary statistics for the selected object, including freeforms, smooth polygons and Bezier Curves with up to and including 10 points or polygons with up to and including 50 points. An Advanced Draw Object with more than the above specified number of points automatically displays a Calculate button which, when pressed, displays the summary information.*

USER TIP *Lines and curves have no area, therefore, the Area summary will display N/A. Paint (bitmap) objects can not be calculated and therefore will display N/A in both Area and Perimeter summaries.*

USER TIP *Objects modified with the Auto-Dimensioning calculator must first be saved, by clicking the "OK" button, before Canvas re-calculates this information.*

Object... ⌘I

(MULTIPLE OBJECTS SELECTED)

Units
Displays the setting in the active Ruler for the selected objects

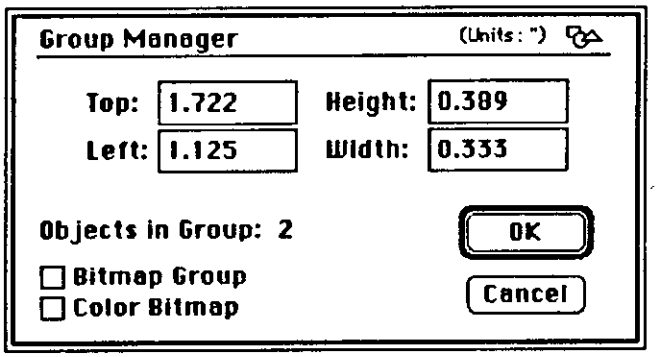
Auto Dimensioning
Shape and boundary editor for the selected group of objects

Objects in Group:
Lists the total number of selected objects to be grouped

Bitmap Group
Converts groups of draw objects into a 72 dpi paint object

Color Bitmap
Converts color picture objects into a 72 dpi paint object (NOTE: available only on the Macintosh II with expanded video capabilities)

Even when a group of objects is selected, Canvas displays the *Group Manager* dialog which gives you limited modification capabilities for the selected group of objects. Since the individual characteristics of each object in a selected group may vary, Canvas displays those functions applicable to the group.



The *Group Manager* dialog displays the total number of objects selected. *Dimensioning* and *Bitmap* conversion are available for groups of objects. Refer to page 2-119 for information on converting objects into bitmaps and page 2-127 for information on modifying the overall size or location the selected group of objects with the *Dimensioning* data.

USER TIP *CHECKING THE COLOR BITMAP OPTION, AVAILABLE ON A MACINTOSH II ONLY, WILL RETAIN ALL OF THE COLOR CHARACTERISTICS OF THE INDIVIDUAL OBJECTS IN THE GROUP.*

Scale...

The *Scale...* command, in the *Object* menu, provides a precise means of reducing or enlarging an object or group of objects. Canvas gives you the choice of scaling either as a "percentage" of the original drawing, or as a "ratio." Additionally, you can either keep the proportions of the original object, by clicking in the "X and Y" check box, or

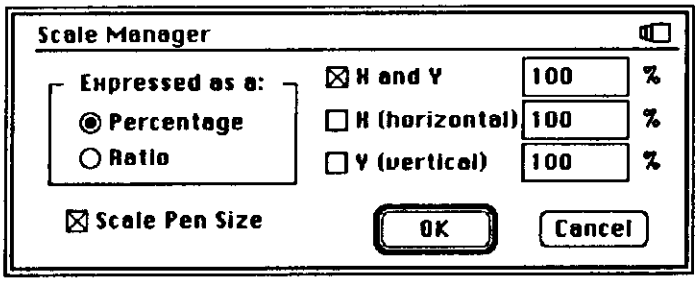
Expressed as a:
Radio button selects the scaling mode

X and Y
Check box and window for proportional (X and Y) scaling

X (horizontal)
Check box and window to vary only the "X" axis

Y (vertical)
Check box and window to vary only the "Y" axis

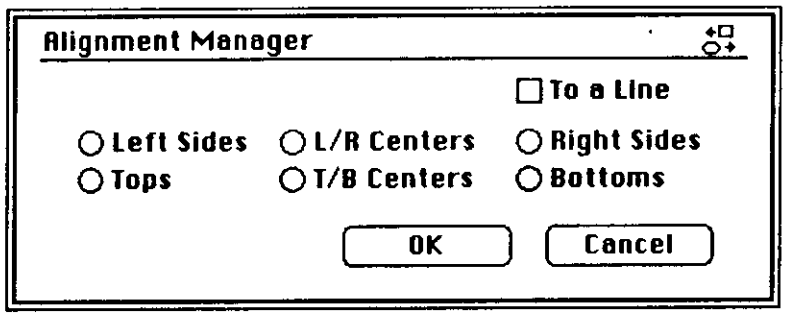
Scale Pen Size
Check box to vary the line's point size



you can distort the selected object using the "X (horizontal)" and/or "Y (vertical)" check boxes.

Align... ⌘Y

There are times when you may wish to align many objects precisely. Canvas has powerful provisions for positioning any number of selected objects by selecting the ***Align...*** option in the ***Object*** menu or the ***Alignment Icon*** from the ***Tool Palette.***

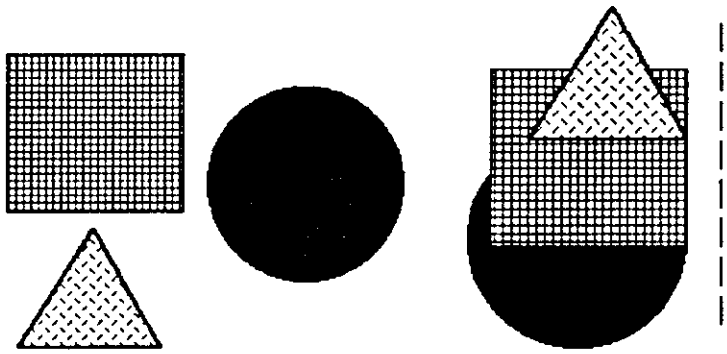


Before selecting *Align...* from the *Object* menu, one or more objects must be selected. Depending upon the options you specify, Canvas will move the selected objects so that their boundaries line up in a number of different ways.

Align to a Line

If you do not specify both vertical and horizontal alignments, you have the option of defining a line on which to align the selected objects:

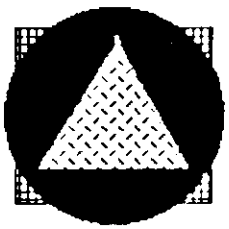
- click on the "Align to Line" check box, then
- click "OK," the cursor will change shape but nothing will happen until you draw the line to be used as a reference.



Align to a Point

If you choose both horizontal and vertical alignment options at the same time:

- the check box will be renamed - "Align to a Point."
- click "OK," the cursor will change shape but nothing will happen until you define a point around which to align all the selected objects.
- define this "Pivot Point" by clicking the mouse any where in the active drawing area.



USER TIP *ALL OBJECTS ARE ALIGNED USING THEIR BOUNDING RECTANGLES AND NOT THEIR ACTUAL EDGES. FOR THIS REASON OBJECTS WITH DIFFERENT BORDER WIDTHS AND GROUPS MAY NOT ALWAYS ALIGN AS EXPECTED. THESE ARE BEST DONE BY USING THE PRECISE MOVEMENT CONTROL OF THE KEYBOARD ARROW KEYS.*

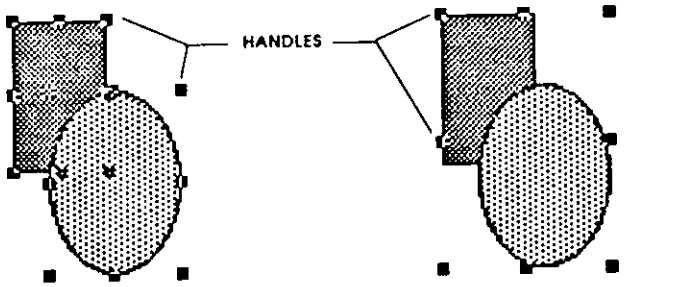
Group ⌘G

Sometimes you will want to consider a group of related objects as a single object. The *Group* (⌘-G) command, from the *Object* menu, allows you to do this. Once grouped, selecting one member of the "group" selects them all.

The ability to define new *classes of objects*, by combining many basic shapes, is one of the most powerful features of Canvas. For example, two squares and a few lines can become a three dimensional cube, different lines and combinations of freehand shapes or polygons, can become plants or hedges for an architectural rendering. You can then duplicate these new shapes with a single command or add them to your own personal **MacrObject** library.

To group objects together:

- select all the objects you want to group, then
- choose *Group* from the *Object* menu. All the objects are now "grouped" and *selected*. Notice that all the individual handles have disappeared and have been replaced by a new set of handles surrounding the entire group.



SELECTED OBJECTS - *NOTE: 8 HANDLES AROUND BOTH*

GROUPED OBJECTS - *NOTE: ONLY 4 HANDLES AROUND A LARGER BOUNDING RECTANGLE*

Ungroup ⌘U

You can separate "grouped" objects by using the *Ungroup* (⌘-U) command. To do this:

- select the group and choose *Ungroup* objects from the *Object* menu. The grouped objects will revert to being individual objects with their own set of selection handles.

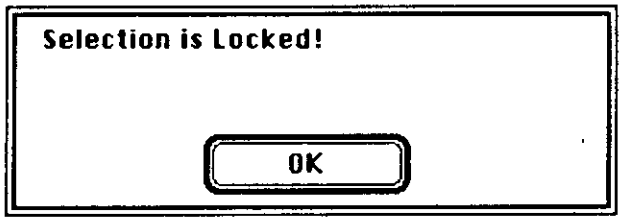
Lock ⌘L

The *Lock* command (⌘-L), from the *Object* menu, lets you "anchor" an object or group of objects in place, so that it can not be moved or changed by accident. When an object or group of objects is locked, you still have the ability to select it, or copy it to the Clipboard. However, you can not align, cut, clear, duplicate, flip, move, rotate, or change its size in any way. This is useful if you have positioned something precisely, and you don't want it modified.

To lock an object or group of objects:

- select the object or group of objects to lock, then
- choose *Lock* from the *Object* menu.

If you attempt to move a locked object, Canvas will display the following alert:



USER TIP *CANVAS DISPLAYS THE "SELECTION IS LOCKED" DIALOG FOR EACH OBJECT IN A GROUP OF MULTIPLE OBJECTS.*

Unlock

To ***Unlock*** a locked object:

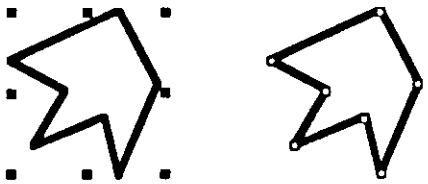
- select the object or group of objects to unlock, then
- choose ***Unlock*** from the ***Object*** menu.

Edit Polygon ⌘E

The *Edit Polygon* (⌘-E) selection from the *Object* menu lets you reshape an existing polygon, freeform object or Bezier Curve. This command is especially useful when used in conjunction with the *Auto Trace to...* command in the *Effects* menu.

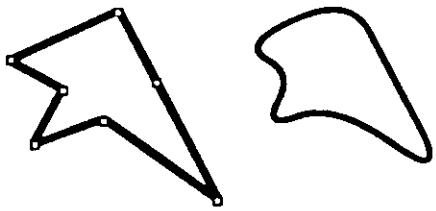
To edit a polygon:

- select the polygon to edit with the *Arrow* cursor



- choose *Edit Polygon* (⌘-E) from the *Object* menu. This command changes the way in which the selected object is highlighted. Instead of showing handles around the polygon's *bounding rectangle*, the polygon is shown with a handle at each point or *vertex*.

- drag these handles individually to reshape the polygon.



Adding Polygon Points

If you drag one of the handles while holding down the *Option* key, a new handle and point (*vertex*) will be created. The old handle will remain in place, and a new one will be inserted between the original and the next vertex in sequence. You can drag this handle to add more definition points to the object. This is especially useful when used in combination with the smoothing option to add detail and control to the appearance of complex polygons or Bezier Curves.

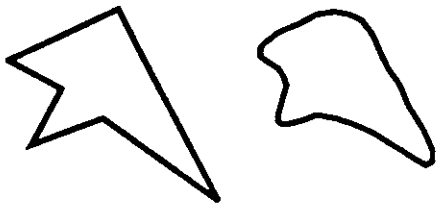
USER TIP *IF THE POLYGON IS "CLOSED," YOU CAN ALSO HOLD THE ⌘ KEY AS YOU CLICK ON A POINT (VERTEX) AND CANVAS WILL "OPEN" THE POLYGON AND ADD ANOTHER POINT (VERTEX). CONVERSELY, IF THE POLYGON IS "OPEN," HOLD THE ⌘ KEY AS YOU CLICK ON ONE OF THE END POINTS AND CANVAS WILL "CLOSE" THE POLYGON BY JOINING THE TWO END POINTS.*

Removing Polygon Points

You can also remove a polygon edit point or *vertex* by simply holding down the *Shift* and *Option* keys while clicking on the vertex to be removed. Clicking anywhere outside the polygon removes the vertex handles and fills the polygon with its original pattern.

Smooth Polygon

The ***Smooth Polygon*** command is used to round the corners of a polygon or freeform shape. The resulting shape is a smooth curve based on the original polygon. This is very significant because it means that any complex curve can be precisely defined using the vertices, or control points, of a polygonal object. To ***Smooth*** a polygon: select the polygon to smooth by clicking on it; then, choose ***Smooth Polygon*** from the *Object* menu. A smooth curve will be fitted to the selected polygon.



UnSmooth Polygon

UnSmooth Polygon restores the original polygon.
To ***UnSmooth*** a polygon:

- select the polygon to smooth by clicking on it, then
- choose ***Smooth Polygon*** from the *Object* menu. A smooth curve will be fitted to the selected polygon.

USER TIP *BY MOVING THE VERTEX POINTS OF THE UNDERLYING POLYGON OR ADDING NEW CONTROL POINTS, YOU CAN CREATE ANY CURVE.*

Split/Bind Polygon ⌘'

There may be times when you may want to open the line segments (*paths*) of a freeform shape, polygon or Bezier Curve. Using the ***Split Polygon*** (⌘-') command from the ***Object*** menu, you can either split an open *path* into two *paths*, or split a closed *path* so that it becomes an open *path*.

The ***Split Polygon*** command can be used to produce a split on any *anchor point* along the *path*.

Splitting Freeform Shapes, Polygons and Bezier Curves

To split a polygon, freeform shape or Bezier Curve:

- select the polygon, freeform shape or Bezier Curve to split using the ***Arrow*** cursor
- choose ***Split Polygon*** (⌘-')from the ***Object*** menu. The cursor changes into a *crosshair* (+) when it is inside of the selected object.
- position the cursor on the *anchor point* of the *path* that you want to split. The cursor changes into a scissors
- click the mouse. The *anchor point* disappears. You can only *split* an open object once. Closed objects may be split twice, once to open it and then, once after that.

When you are finished:

- click the mouse outside of the object to de-select the *scissors*. If your object was a closed polygon and you *only split one path, thus opening the object*, Canvas will select the entire open object. However, if your original object was an *open polygon, freeform shape or Bezier Curve*, then Canvas will select the *last path split*.

With the object selected, you can bind it (attach it) to another polygon, freeform shape or Bezier Curve. The ***Bind Polygon*** (⌘-') command appears after an object has been split or when any two polygons, freeform shapes or Bezier Curves are selected. It allows you to connect the *endpoints* of these objects, making one object.

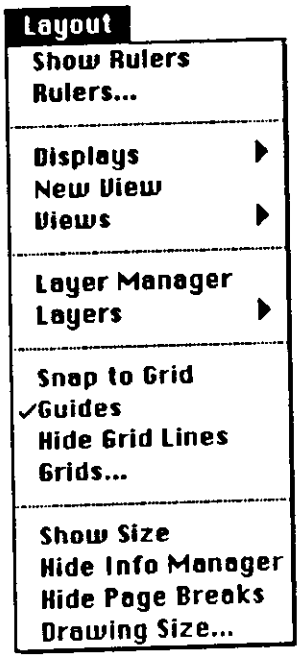
Binding Freeform Shapes, Polygons and Bezier Curves

To bind two selected *paths*:

- select the two *paths* with the *Arrow* cursor. (*Remember to hold the Shift key as you click on the second path.*)
- choose the ***Bind Polygon*** (⌘-') command from the ***Object*** menu. The cursor changes into a *crosshair* (+).
- position the *crosshair* cursor on the *endpoint* of one of the selected *paths*. The cursor changes into an *eye dropper*.
- drag the mouse from the *endpoint* of the first *path* to the *endpoint* of the second. The cursor changes back into a *crosshair* while you drag the mouse. Canvas automatically draws a *path* during the drag. When the *crosshair* is positioned on the *endpoint* of the second, the cursor changes back into an *eye dropper*.
- click the mouse to bind the two *paths* together.

USER TIP *IT IS IMPORTANT TO REMEMBER THAT YOU CAN ONLY BIND SIMILAR OBJECTS. THAT MEANS A POLYGON CAN ONLY BE BOUND TO ANOTHER POLYGON OR TO A LINE. FREEFORM SHAPES CAN ONLY BE BOUND TO OTHER FREEFORM SHAPES; AND, BEZIER CURVES CAN ONLY BE BOUND TO OTHER BEZIER CURVES.*

About the Layout Menu



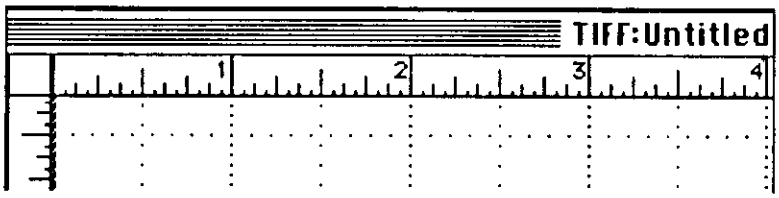
The *Layout* menu contains the commands which affect the appearance of an entire illustration. Here you will find options for showing and customizing the Canvas illustration's rulers. Canvas provides a means of navigating to specific areas of your document with the *View* and *Layer* options. In order to insure precise alignment and scaling of illustrations, the *Layout* menu also provides both *Guides* and *Grids* options. From the *Information Manager*, you can display Canvas' *Auto-Dimensioning* and *Area Calculation* information. Additionally, Canvas can display *Page Breaks* for illustrations that stretch beyond a single page and a "thumbnail" sketch of your illustration's overall size with the *Drawing Size...* option.

Show/Hide Rulers

The *Show Rulers* option tells Canvas to display or hide rulers in your illustration. Canvas has two rulers, one across the top and one along the left side of the *Canvas Window*. When you open an illustration, the rulers are not visible, but you can display them at any time. When displayed, thin gray lines follow the movements of the mouse along both axes. These lines help you position and measure objects with precision.

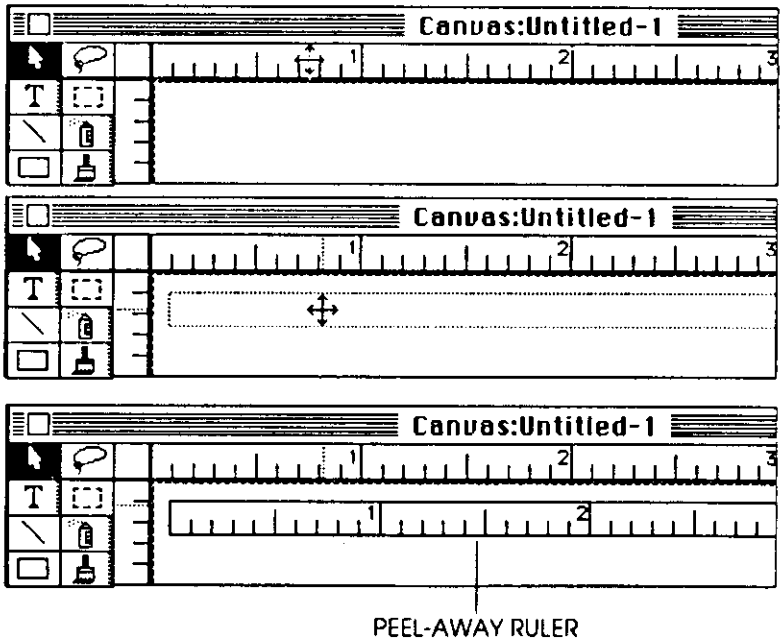
To ***Show Rulers*** in the *Canvas Window*: choose ***Show Rulers*** from the ***Layout*** menu. The rulers will appear across the top and along the left side of the *Canvas Window*. Once the rulers are visible, you can hide them.

To ***Hide Rulers*** in the *Canvas Window*: choose ***Hide Rulers*** from the ***Layout*** menu. The rulers will disappear.



Peel-Away Rulers

Canvas offers "*Peel-Away*" rulers, once rulers are visible in the illustration. This will provide additional measurement capabilities. You can drag "Peel-Away" rulers anywhere in the illustration.



To *"Peel-Away"* rulers in an illustration: choose ***Show Rulers*** from the ***Layout*** menu. Position the cursor on the ruler that you wish to *"Peel-Away."* Press and hold both the *Option* key and mouse button, the cursor changes to: ↔ Drag the ruler to its location in the illustration. Once displayed, *"Peel-Away"* rulers may be moved around the illustration. To do this: click the mouse on the ruler (*handles will appear*). Press and hold the mouse button down, the cursor again changes its shape to: ↔ Drag the ruler to its new location. (*The ruler "tick" marks are not displayed for "Peel Away" rulers.*) To remove *"Peel-Away"* rulers: click the mouse on the ruler (*handles will appear*). Press the *Delete* or *Backspace* key or ⌘X.

Rulers...

Canvas allows you to customize any of the program's 6 available rulers. From the ***Ruler...*** menu option in the ***Layout*** menu, the *Ruler Manager* can: switch rulers; set the unit of measurement in inches, centimeters, points or picas; vary the scales; vary the unit of measure; set the minor ruler subdivisions; and, automatically configure the your illustration for printing on an ImageWriter or LaserWriter.

Ruler #
Pop-up menu allows movement in an illustration between 6 customized rulers

Units
Pop-up menu selects inches, points, centimeters, picas or type a custom unit

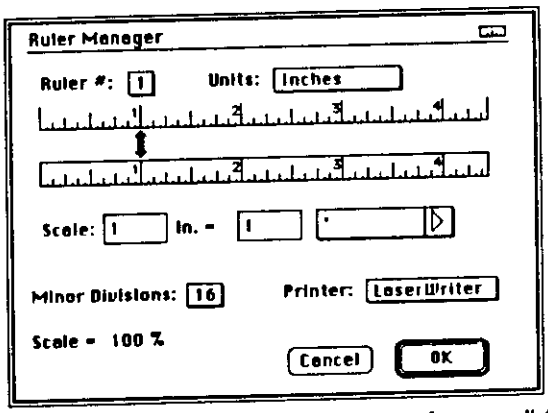
Scale Indicator Double Arrows
Visual display of the scale relationship

Scale:
Type in the scale relationship

Measurement Scale Arrow
Pop-up menu selects a pre-defined setting in inches, feet, miles, millimeters, centimeters, kilometers, parsecs or light years or type a custom unit

Minor Divisions
Pop-up menu selects a ruler subdivision from 1 to 16

Printer
Pop-up menu adjusts the ruler scales for correct printer scaling

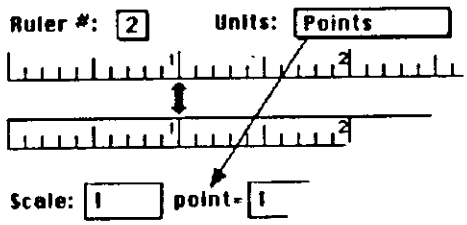


The *Ruler Manager* is the "control center" for customizing any of the settings for a ruler. Canvas' rulers offer

complete versatility. In fact, the program will allow you to define your own measurement scale by simply typing your definition in the "*Measurement Scale*" window of the *Ruler Manager*.

Customizing A New Ruler

The "*Ruler Manager*" lets you switch between 6 rulers, each of which may be individually configured. To create a custom ruler: select ***Ruler...*** from the ***Layout*** menu. Press the mouse on the *Ruler #:* icon, and drag it to select the ruler to configure. Release the mouse button when your selection is highlighted. *(Note that your selection is displayed in the icon).* Next, press and hold the mouse on the *Units:* icon, and drag it to select the ruler's units scale. Release the mouse when your selection is highlighted. *(Note that your selection is displayed in the icon).* After a *Units:* selection is made, Canvas automatically changes the *Ruler's Scale:*



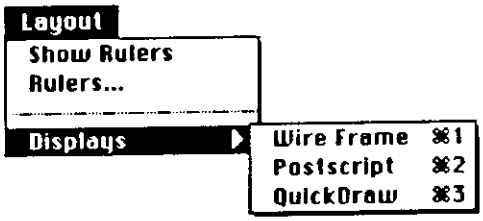
Now enter a value in the *Scale:* dialog box. Press and hold the mouse over the ▷ icon, then drag the mouse to select the measurement scale (*or type your own definition in the Scale: dialog window*). Next, place the mouse over the *Minor Divisions:* icon, press, hold and drag the mouse to select the number of sub-divisions you want to display in your ruler. Select the *Printer:* icon to configure your output device.

Click the *OK* button or press *Return* to close the *Ruler Manager* dialog and save your custom settings.

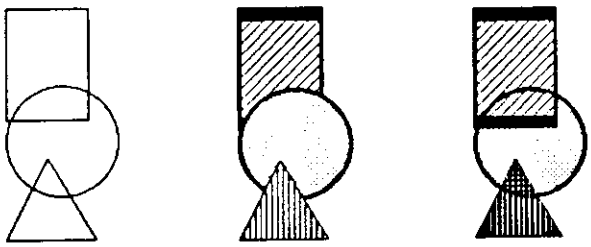
USER TIP *THE PROPER SETTING OF THE IMAGEWRITER OR LASERWRITER "PRINTER" OPTION IS VERY IMPORTANT. THIS SETTING MAKES SMALL ADJUSTMENTS TO THE ACTIVE RULE SCALE TO ACCOUNT FOR SCALING DIFFERENCES BETWEEN THESE TWO PRINTING DEVICES. FOR EXAMPLE, IF YOU WANT A ONE INCH SQUARE BOX TO PRINT AS EXACTLY ONE INCH SQUARE ON THE LASERWRITER, THEN YOU MUST FIRST SET THE "PRINTER" OPTION TO LASERWRITER, THEN DRAW THE SQUARE ON THE SCREEN. WHEN PRINTED, IT WILL PRINT CORRECTLY. IF YOU CHANGE PRINTERS AND PRINT THE SAME SQUARE ON AN IMAGEWRITER, IT WILL BE 4% LARGER. THE CONVERSE IS ALSO TRUE.*

USER TIP *WHEN PRINTING ON THE LASERWRITER WITH CANVAS, IT IS EXTREMELY IMPORTANT FOR THE "PRECISE BITMAP ALIGNMENT" OPTION TO BE SET TO "OFF." WITH THIS OPTION "ON," THE PRINT DRIVER WILL INSTRUCT THE PRINTER TO REDUCE THE DRAWING BY 4%. WHEN YOU SET THE "PRINTER" OPTION TO LASERWRITER, CANVAS AUTOMATICALLY SCALES THE RULERS TO COMPENSATE FOR THIS REDUCTION. THE "PRINTER" OPTION INSURES THAT ONE INCH SQUARE ON THE SCREEN PRINTS AS ONE INCH SQUARE ON THE LASERWRITER, AND THAT ALL BITMAP OBJECTS, ESPECIALLY 300 DPI BITMAPS, WILL PRINT CLEARLY AND IN PERFECT ALIGNMENT.*

Displays



Canvas provides three display modes by which you can view your illustration in the *Canvas Window: **Wire Frame** (⌘-1), **Postscript** (⌘-2)* or *Quickdraw* (⌘-3). While you can vary the screen display of your illustration, Canvas will not remove any of the characteristics defined in your illustration, i.e. pen sizes, fills, color, the ***Ink Manager's*** transfer modes, etc.

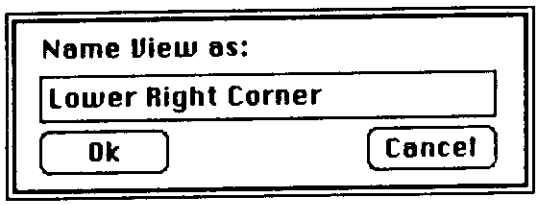


WIRE FRAME POSTSCRIPT QUICKDRAW

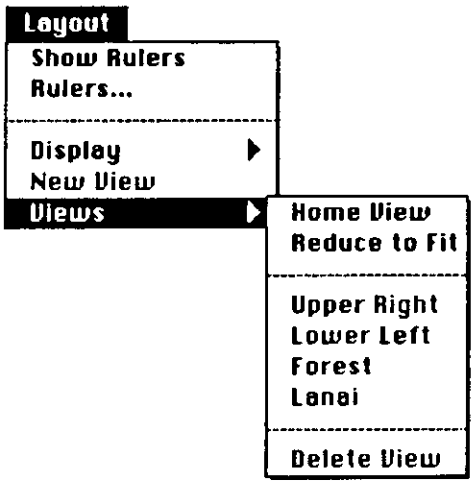
When You Choose:	You Get:
Wire Frame (⌘-1)	Pen Sizes equal 1 point No Pattern Fills No Line Fills No Color *Copy mode* from the ***Ink Manager***
Postscript (⌘-2)	Pen Sizes as set Pattern Fills as set Line Fills as set Color as set *Copy mode* from the ***Ink Manager***
Quickdraw (⌘-3)	Pen Sizes as set Pattern Fills as set Line Fills as set Color as set All *modes* from the ***Ink Manager***

New View

The *New View* option in the ***Layout*** menu provides a means of quickly and easily moving around the *Canvas Window*. Think of a *view* as a "snapshot" of the "*Canvas Window*." Wherever you are located in your illustration (including the Sideboard) at the time you define a *New View* is saved for future reference. To define a *New View*: move to the area of your illustration where you want to take a "snapshot;" select the *New View* option in the ***Layout*** menu. Type the name of your view and click the *OK* button or press *Return* to save your *view*.



Views

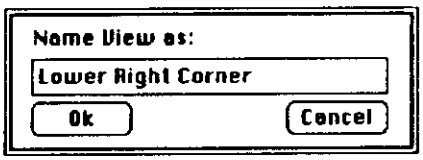


The *Views* option provides a directory of the default views *"Home View"* and *"Reduce to Fit,"* plus any views already defined for the illustration. The *Views* option displays a hierarchical menu from which to choose your selection. *"Home View"* is the upper left corner of your illustration in the *Canvas Window*. This is the view that is displayed whenever an illustration is first opened. *"Reduce to Fit"* will shrink the illustration, regardless of it's size, to fit into the *Canvas Window*. All views that have been defined for an illustration will appear in the menu below the dotted line under the *Reduce to Fit* option. Once one or more *views* have been defined, the *Delete View* option is displayed. The *Delete View* option eliminates unwanted "*snapshots*" in your illustration.

Creating A View

To define a *New View*:

- **Move to the area of your illustration where you want to take a *"snapshot."***
- **Select the *New View* option in the *Layout* menu.** The following dialog appears:



- **Enter the name of your view.**
- **Click the *OK* button or press *Return* to close the dialog and save your name. *Cancel* will close the dialog without saving your *"snapshot."***

Switching Views

The *Views* option provides a directory of the default views *"Home View* (⌘-Option-H)" and *"Reduce to Fit* (⌘-Option-R)," plus all views defined in your illustration (⌘-Option-1 to 9). All views that have been defined for an illustration will appear in the menu below the dotted line under the *Reduce to Fit* option.

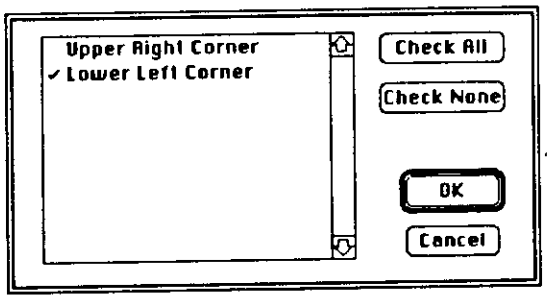
"Home View (⌘-Option-H)" is the upper left corner of your illustration in the *Canvas Window*. This is the view that is displayed whenever an illustration is first opened.

"Reduce to Fit (⌘-Option-R)" will shrink the illustration, regardless of it's size, to fit into the *Canvas Window*.

Deleting A View

Once you have defined more or more views, you may wish to discard a view of an area. The ***Delete View*** option is displayed in the menu *only* after you define a *view* and will remove any one or combination of views.
To delete one or more *views*:

- **Select the *Delete View* option in the *Layout* menu.** The following dialog appears:



As you move the mouse into the dialog window, it changes its shape to ✓.

- **Click the mouse on the view(s) you wish to discard, or**
- **Click the *"Check All"* button to remove all views at once.**
- **Click the *OK* button or press *Return* to close the dialog and discard the view(s). *Cancel* will close the dialog without removing the view(s).**

USER TIP *THE "CHECK NONE" BUTTON IS DIMMED UNTIL A VIEW IS SELECTED FOR REMOVAL. CLICKING THE MOUSE ON THIS BUTTON WILL DE-SELECT ALL VIEWS "CHECKED" FOR REMOVAL.*

Layer Manager

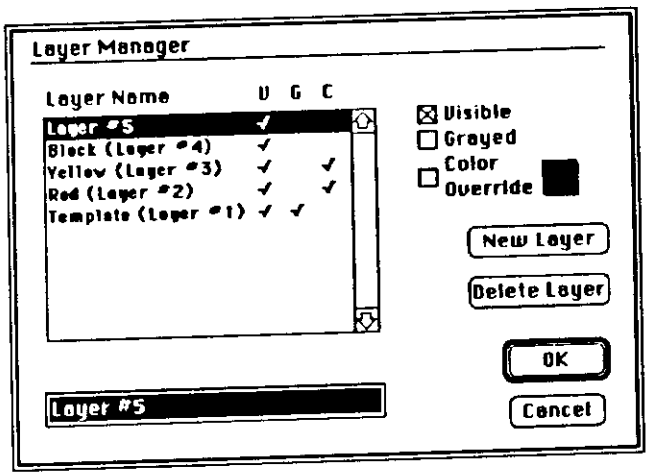
A Canvas illustration may have an unlimited number of user defined layers. A layer is like a sheet of acetate - it is totally transparent until it is modified. Documents may be created on a single layer or, for more complex illustrations, multiple layers. The ***Layer Manager*** controls your layers. When you create a new illustration or open an existing Canvas document, the ***Layer Manager*** opens your document to Layer #1.

Layer Name
Shows a complete list of all layers with their characteristics in the document

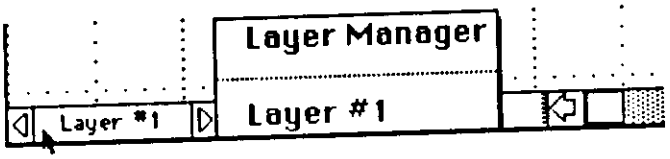
Layer Characteristics
Allows you to Show/Hide a Layer, Gray it; or add a Color Override

New Layer
Adds a layer to the document

Delete Layer
Cuts an entire layer from the document



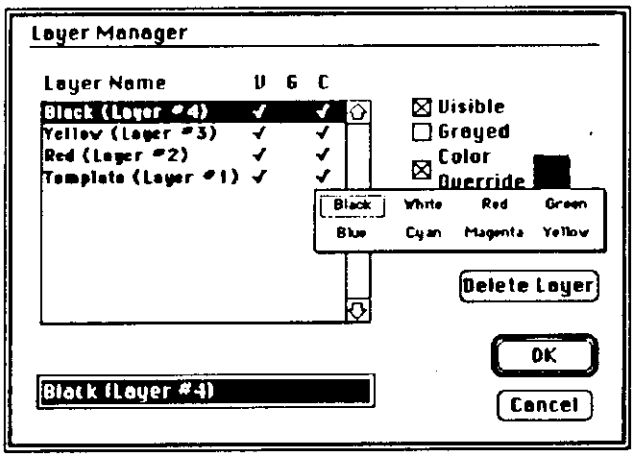
Use the ***Layer Manager*** to add, delete, modify or switch layers in your illustration. You can access the ***Layer Manager*** by selecting it from the ***Layout*** menu or by pressing the *Arrow* cursor on the ***Layer Monitor,*** located next to the ***Information Manager*** in the *Canvas Window.*



USER TIP *IF YOU FORGET WHICH LAYER YOU ARE WORKING IN (THE ACTIVE LAYER), CHECK THE NAME IN THE LAYER MONITOR - IT ALWAYS LISTS THE ACTIVE LAYER IN THE ILLUSTRATION.*

Creating a New Layer

To create a new layer in your illustration: open the ***Layer Manager*** in the ***Layout*** menu or the ***Layer Monitor***; then, click on the "*New Layer*" button. Canvas automatically names the new layer "*Layer #__*" - where the "__" represents the next sequence number for the new layer. You can enter any name, if you desire. Check the appropriate boxes in the *Layer Characteristics*: checking the *Visible (V)* box allows you to place objects in the layer. If this box is not checked, the layer will become non-editable and will not print. Checking the *Grayed (G)* box will automatically gray all objects on the layer, and will not print. The *Color Override (C)* box will apply your color choice to all objects on that layer. Use the *Color Control* to enable a color. Click *OK* or press *Return* to save your new layer and its characteristics.



Layers

You can easily switch between layers in your illustration by selecting the layer from the ***Layers...*** option in the ***Layout*** menu. Position the mouse over the ***Layers...*** option in the ***Layout*** menu, then press the mouse button and drag it over the layer you wish to switch to.

From the *Layers...* option:

- Position the mouse over the *Layers...* option in the *Layout* menu.
- Drag it over the layer you wish to switch to.

From the *Layer Monitor*:

- Position the mouse over the *Layer Monitor* in the *Canvas Window*.
- Drag it over the layer you wish to switch to.

From the *Layer Manager*:

- Select the *Layer Manager* from the *Layout* menu.
- Click the mouse in the *Layer Window* on the layer that you wish to switch to.
- Click *OK* or press *Return* to close the *Layer Manager*.

Rearranging Layers

You can rearrange the order of layers as they appear in an illustration:

- Select the *Layer Manager*.
- Click on the layer that you want to re-order.
- Drag it to its new location is the stacking order.
- Click *OK* or press *Return* to re-order the layers, or *Cancel* if you change your mind.

Showing All Layers

You can show all layers in an illustration, regardless of the *Layer Characteristics* settings in the *Layer Manager:*

- Select *Layers* in the *Layout* menu.
- Choose the *Show All Layers* (⌘-5) command.

Hiding All Layers

Just as easy, you can hide all layers in an illustration, except the current layer, regardless of the *Layer Characteristics* settings in the *Layer Manager:*

- Select *Layers* in the *Layout* menu.
- Choose the *Hide All Layers* (⌘-4) command.

Moving Objects Between Layers

Canvas also allows you to move selected objects from one layer to another:

- **Select the object(s) to move with the *Arrow* tool.**
- **Press the *Option* key as you open the *Layer Monitor*.**
- **Drag the mouse over the layer that you want the selected object(s) moved to.**
- **Release the *Option* key.**
- **Release the mouse button.**

Deleting Layers

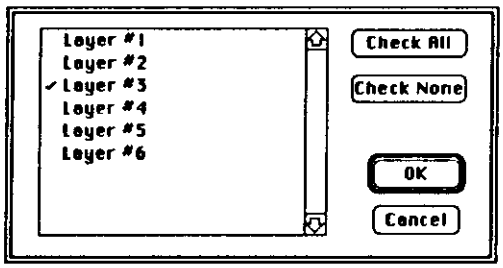
The *Delete Layer* function of the *Layer Manager* will remove the selected layer and all objects on that layer.

- **Open the *Layer Manager* in the *Layout* menu or the *Layer Monitor*.**
- **Click on the layer to delete (it will highlight).**
- **Click the *Delete Layer* button.**
- **Click *OK* or press *Return* to close the *Layer Manager*.**

Saving Layers

Use the *Save Layer As...* command in the *File* menu to isolate a layer(s) in your illustration and save the layer(s) as a separate document:

- **Check the layer(s) you want to save.**



- **Click *OK* or press *Return* and Canvas will display the "Save current document as..." dialog.**
- **Follow the same procedures as in *Save as...***

USER TIP *CHECKING MULTIPLE LAYERS WILL ALLOW CANVAS TO COMBINE LAYERS INTO A NEW ILLUSTRATION. EACH LAYER REMAINS SEPARATE IN THE NEW DOCUMENT, PROVIDED THAT YOU SAVE THE NEW DOCUMENT IN THE CANVAS FORMAT OPTION.*

Snap to Grid

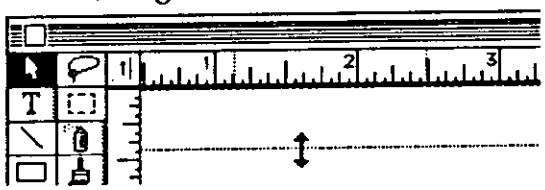
The *Snap to Grid* command in the *Layout* menu enables or disables an invisible alignment grid that permits the alignment of objects with precision. The action of this grid is controlled through the *Grid Specs...* command. When enabled, dragging or sizing an object or group of objects causes it to *"snap"* to the nearest grid line.

USER TIP *THE ALIGNMENT GRID DOES NOT HAVE TO BE VISIBLE FOR IT TO BE ACTIVE. THE SNAP TO GRID OPTION IS INDEPENDENT OF THE SHOW GRID LINES OPTION.*

USER TIP *YOU CAN TEMPORARILY DISABLE THE SNAP TO GRID OPTION WHEN DRAWING OR DRAGGING AN OBJECT. TO DO THIS, HOLD THE TAB KEY AS YOU DRAW OR DRAG YOUR OBJECT. RELEASE THE TAB KEY TO RE-ACTIVATE THE SNAP TO GRID OPTION.*

Guides

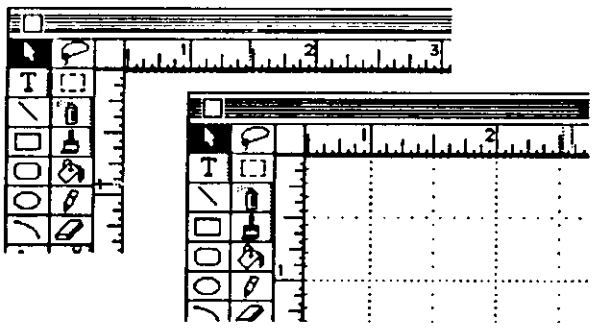
Guides are lines used to help you align objects. *Guides* are available whenever the *Show Rulers* option has been enabled. While visible on the screen, *Guides* will not print in your illustration. To display *Guides* in an illustration: select the *Show Rulers* option in the *Layout* menu; select *Guides* from the *Layout* menu; position the mouse inside either the horizontal or vertical ruler; press and hold the mouse button, the cursor changes to ↕; drag the *guide line* into your illustration. To remove the *Guides*: position the mouse on top of the *Guide;* press and hold the mouse button; drag the *Guide* out of the *Canvas Window.*



USER TIP *IF YOU HOLD THE OPTION KEY AS YOU DRAG A GUIDE, CANVAS WILL AUTOMATICALLY MOVE ALL OBJECTS THAT "TOUCH" THE GUIDE.*

Show/Hide Grid Lines

The *Show / Hide Grid Lines* options from the *Layout* menu displays or hides the Canvas alignment grid. The appearance of this grid is controlled by the *Grid...* option in the *Layout* menu. The display of the grid on the screen does not depend on the *Snap to Grid* option being active.



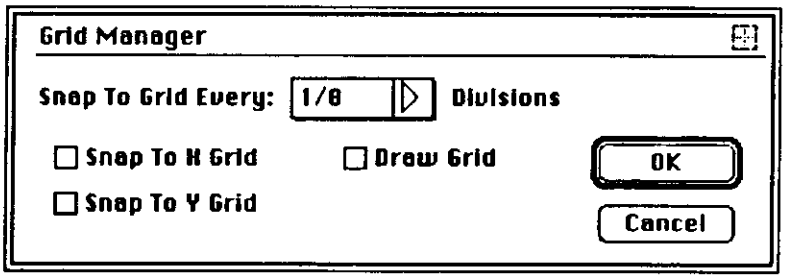
Grids...

The *Grids...* option in the *Layout* menu offers a number of powerful alignment options. Canvas permits you to define the resolution of the grid system independent of the current ruler. You can either specify a pre-defined grid division or enter your own specifications. The Canvas grid system can be activated for either the *"X-Axis"* or *"Y-Axis"* or *"Both."* When the *Grids...* option is selected the following dialog appears:

Snap To Grid Every:
Displays Either a Pre-defined "Snap-To" Setting From the Pop-up Menu or Type a Custom "Snap-To" Setting

X / Y Axes Controls
Check Boxes that allow control of either the X or Y or Both Axes

Draw Grid
Check Box to Turn the Screen Grid On or Off



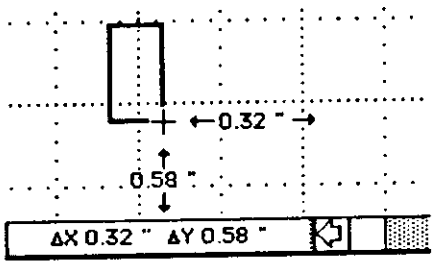
Creating a Custom Grid

To create a custom grid:

- select the *Grids...* option from the *Layout* menu
- either enter a custom definition for the grid in the *"Definition Window"* or
- press and hold the *"Grid Definition"* Pop Up menu icon, then
- drag the mouse over your menu selection
- release the mouse button (Notice that your selection has been entered in the *"Definition Window"*)
- click the mouse in either the *"X-Axis"* or *"Y-Axis"* or both, check boxes to define the "Snap-To" mode
- click the mouse in the *"Draw Grid"* to display the alignment grid on the screen
- click *OK* or press *Return* to close the dialog and save your specifications, or click *Cancel* if you change your mind.

Show/Hide Size

The *Show Size* option from the *Layout* menu displays the *Arrow* cursor's movement across your illustration. You see the cursor's horizontal and vertical distance from the ruler's zero point. This same information can be displayed in the *Information Manager*, located on the bottom of the *Canvas Window*.



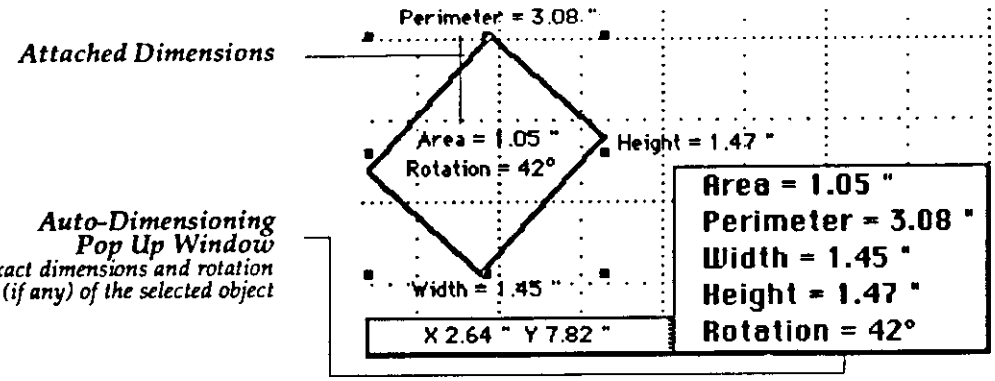
When the *Show Size* option is selected, the display in the *Layout* menu changes to *Hide Size*. Selecting the *Hide Size* option removes the cursor's dimensioning display from the *Canvas Window*.

Show/Hide Info Manager

The *Show Info Manager* displays the *Information Manager*. The *Information Manager* is located on the left side of the *Horizontal Scroll Bar*. You can view detailed measurements about whatever task you are doing with the *Arrow*, or view the *Auto Dimensioning* data about any selected object in the *Canvas Window*. Refer to page 6 for a detailed description of the various types of information displays available in the *Information Manager*. When the *Show Info Manager* option is selected, the display in the *Layout* menu changes to *Hide Info Manager*. Selecting the *Hide Info Manager* option removes the *Information Manager* display from the bottom of the *Canvas Window*.

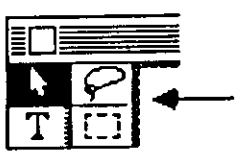
The *Information Manager* can *attach* the information displayed in the dialog window to the selected object. To attach *Auto-Dimensioning* data to an object:

- select the object in the *Canvas Window* with the *Arrow*,
- place the *Arrow* in the *Information Manager* window
- press and hold the mouse button and the *Option* key
- with the *Arrow*, select the information, displayed by the *Information Manager*, that you want attached to the object, then release the mouse button. Canvas automatically positions the *Auto-Dimensioning* data in the selected object.

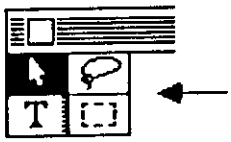

Attached Dimensions
Perimeter = 3.08 "
Area = 1.05 "
Rotation = 42°
Height = 1.47 "
Width = 1.45 "
X 2.64 " Y 7.82 "
Auto-Dimensioning Pop Up Window
Displays the exact dimensions and rotation angle (if any) of the selected object
Area = 1.05 "
Perimeter = 3.08 "
Width = 1.45 "
Height = 1.47 "
Rotation = 42°

Show/Hide Page Breaks

The *Show / Hide Page Breaks* option is extremely useful for large drawings. Since Canvas offers a drawing area up to 9 feet by 9 feet, most printers are not capable of matching the output of a Canvas illustration this big. To solve this problem, Canvas divides the drawing area into many sections, matching the size of the printer paper selected. Once printed, the edges of all of the pages can be pasted together.



PAGE BREAK



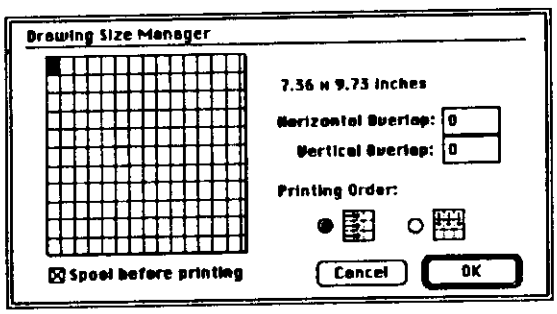
NO PAGE BREAK

The *Show Page Break* command controls the display of page breaks. Page breaks are thick striped lines used to delineate the edges of all of the individual sheets that compose the Canvas illustration.

USER TIP *THE PAGE SIZE AND ORIENTATION OF THE INDIVIDUAL SHEETS IS CONTROLLED BY THE PAGE SETUP COMMAND IN THE FILE MENU.* *REFER TO PAGE 3-104 FOR MORE INFORMATION*

Drawing Size...

Canvas offers a very large drawing area up to 81 square feet. The *Drawing Size...* command allows you to define the size of the active drawing and printing area to fit your particular needs.



When you select the *Drawing Size...* menu option from the *Layout* menu, the dialog on the previous page is displayed. The current size document is displayed in black (inverted).

Changing the Size

To change the size of the drawing area:

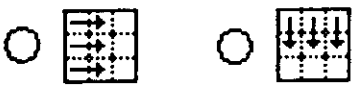
- select the *Drawing Size...* option from the *Layout* menu, and
- click and drag the mouse inside the drawing window to highlight the desired size. As you increase the size of the drawing area, the dimensions of your illustration change accordingly.
- when you are satisfied with your new size, click *OK* or press *Return* to close the dialog and save your changes. Click *Cancel* if you change your mind.

Specifying Overlap

You can also specify the *horizontal* and/or *vertical overlap*. The *overlap* is that amount of your illustration, as specified in the *Drawing Size...* window that is *repeated* on adjoining pages, when the pages are printed. This is extremely useful for precise alignment in assembling multi-page illustrations. The *horizontal* and *vertical overlap* are controlled by the settings in the active ruler, regardless of whether the ruler is visible.

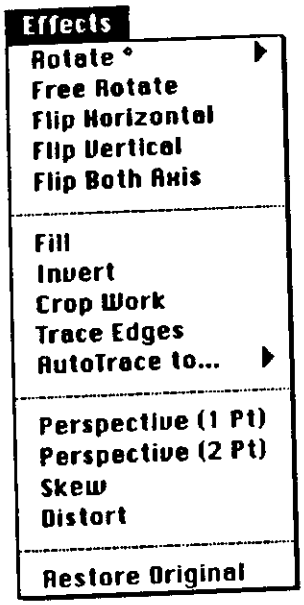
Specifying Print Order

You can also set the *Printing Order* of the pages that make up your illustration. You can print pages either in a horizontal sequence across rows, or in a vertical sequence down the columns of pages of the illustration.



You choose the horizontal or vertical sequence by clicking the mouse in the appropriate box to the left of the display. Choosing a printing sequence is useful when you need to print selected pages from a large illustration.

About the Effects Menu

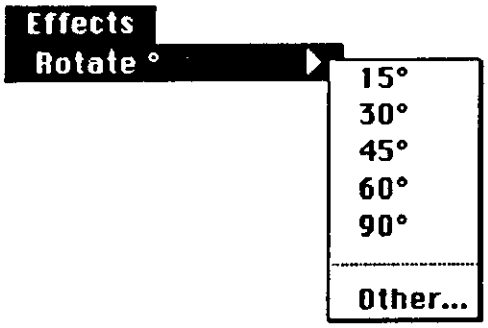


The *Effects* menu provides the means for you to transform any number of objects in your illustration. From this menu, you can easily *Rotate* any object or group of objects in precise 1° increments, either clockwise or counterclockwise. You can *Flip* any object or group of objects on one or both axes. Using the *Fill* command, any pattern can be applied to a selected object or group of objects, while the *Invert* option changes black to white or white to black. The *Crop* command automatically removes the "extra" space around your graphics. With the *Trace Edges* command, selected areas of bitmaps can be quickly traced, while *Auto Trace to...* gives you the power to automatically trace an image with a high resolution of accuracy. *Perspective*, *Skew*, and *Distort* give you easy access to create a number of special effects with your object or group of objects. Yet, even the greatest of artists make mistakes, so Canvas gives you the *Restore Original* command to revert back to the last saved version of your illustration.

USER TIP THE OPTIONS CONTAINED IN THE EFFECTS MENU ONLY WORK WITH ONE OBJECT AT A TIME, HOWEVER, CANVAS CONSIDERS A GROUP OF OBJECTS AS ONE OBJECT. THEREFORE, IF YOU WANT TO ROTATE 25 OBJECTS AT ONE TIME, YOU MUST FIRST GROUP THEM, THEN YOU CAN ROTATE THEM.

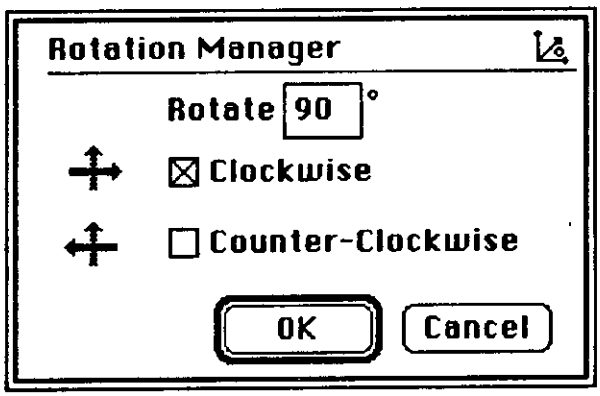
USER TIP WHENEVER YOU ARE WORKING WITH BITMAP (PAINT) OBJECTS IN THE EFFECTS MENU, THE BITMAP AREA MUST FIRST BE SELECTED WITH THE LASSO OR SELECTION RECTANGLE TOOLS:

Rotate°



The *Rotate* command from the *Effects* menu, displays a hierarchical menu which enables the rotation of any object or group of objects in pre-defined increments, in the direction selected in the *"Rotate Options"* dialog of the *Other...* option. Additionally, the *Other...* option from the *Rotate* menu offers a user-definable rotation angle window to rotate in 1° increments.

By selecting the *Other...* option from the *Rotate* menu, you can configure the *"clockwise* ↻ *"* or *"counterclockwise* ↺ *"* direction of movement for both the pre-defined and user-definable rotation angles.



Free Rotate

The *Free Rotate* command from the *Effects* menu, moves an object or group of objects in an imaginary circle around the center of your object or group of objects.

Flip Horizontal

Flip Vertical

Flip Both Axis

Any object or group of objects can be flipped along its horizontal or vertical axis, or along both axes at the same time. These special effects are all located in the *Effects* menu. When selected, each command will accomplish exactly what its name implies.

Fill

The *Fill* command from the *Effects* menu is a special effect which can only be applied to portions of bitmap (paint) objects highlighted with the *Lasso* or *Selection Rectangle* tools. The *Fill* command will replace the marqueed bitmap area with the active fill pattern on the *Tool Palette.*

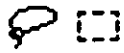
Invert

The *Invert* command from the *Effects* menu is a special effect which can only be applied to portions of bitmap (paint) objects highlighted with the *Lasso* or *Marquee* tools. The *Invert* command will replace black with white in the marqueed bitmap area.

Crop Work

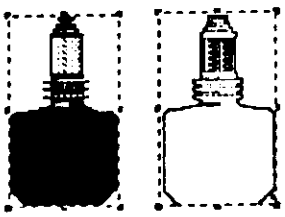
The *Crop Work* command from the *Effects* menu is a special effect which can only be applied to portions of bitmap (paint) objects highlighted with the *Lasso* or *Marquee* tools. The *Crop Work* command will reduce the bounding rectangle (*depicted by 8 squares*) around your object by eliminating the *white space.*

Trace Edges



The *Trace Edges* command from the *Effects* menu is a special effect which can only be applied to portions of bitmap (paint) objects highlighted with the *Lasso* or *Marquee* tools. The *Trace Edges* command will *trace* your selection and replace it with an outline image of the original selection. To use the *Trace Edges* command:

- **Using either the *Lasso* or *Marquee* tools, select the area of your object to trace, then**
- **Choose the *Trace Edges* command from the *Effects* menu.**



Auto Trace to...

The *Auto Trace to...* command is a special effect in the *Effects* menu which will *automatically trace* a bitmap (paint) object, superimposing a polygonal object outline on top of the original selection. Since the traced outline will be a *polygon,* it may be edited as any object oriented draw object. The *Auto Trace to...* command displays a hierarchical menu from which you can choose either the ***Polygon*** or ***Smooth Polygon*** options. Both options will automatically trace your selection. The ***Polygon*** option will capture more *"vertices"* (points to edit), than the ***Smooth Polygon*** option.

To use the *Auto Trace to...* command:

- **Use either the *Arrow* tool to select the entire bitmap object, or the *Lasso* or *Marquee* tool, to trace a selected portion of the bitmap.**
- **Press and hold the mouse button down as you select *Auto Trace to...* from the *Effects* menu.**
- **Drag the mouse down the hierarchical menu to select either the *Polygon* or *Smooth Polygon* option.**
- **Release the mouse button and Canvas will automatically trace your selection.**

USER TIP *THE AUTO TRACE TO... WILL BE COMPLETE WHEN YOUR SELECTION IS SUPERIMPOSED WITH A SERIES OF SELECTED VERTICES (EDITING POINTS).*

ORIGINAL

COMPLETED AUTOTRACE

To separate the original bitmap (paint) object from the new traced polygonal image:

- **Press and hold the mouse button in an area of your selection that is not highlighted by the polygonal vertices (displayed as rectangles) until the cursor turns into a *"cross hair +"* then,**

- **Drag the mouse (you will be dragging the original image from "under" your new tracing) then,**

- **Release the mouse button when you have completely separated the two images and click the mouse outside the bounding rectangle of your original image to de-select it.**

ORIGINAL

POLYGON AUTOTRACE

SMOOTH POLYGON AUTOTRACE

Perspective (1 Point)

Canvas offers two separate special effects which create the illusion of depth in an illustration. The ***Perspective (1 Pt)*** and ***Perspective (2 Pt)*** options of the *Effects* menu can be applied to a single object, group of objects or an arbitrary bitmap area (highlighted by the ***Lasso*** or ***Selection Rectangle***) within a paint object.

Perspective (2 Point)

The *Perspective (2 Pt)* command creates a different illusion of depth than the ***Perspective (1 Pt)***, with its results similar to those found in architectural perspective drawings.

Skew

The *Skew* command from the *Effects* menu lets you *"slant"* an object, group of objects or arbitrary bitmap area within a paint object.

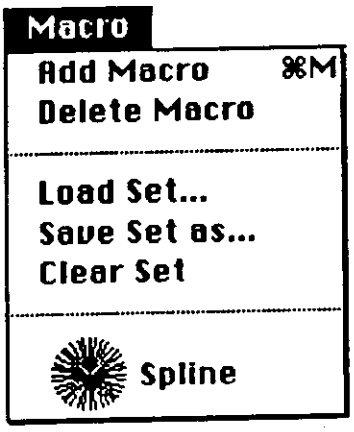
Distort

The *Distort* command allows you to *"pull"* an object, group of objects or arbitrary bitmap area within a paint object in any direction. The results are similar to those found when drawing something on a piece of rubber, and pulling on one end.

Restore Original

Since some of the effects in the *Effects* menu will necessarily modify the selected object, group of objects or an arbitrary bitmap area with a paint object, Canvas performs all of these *"special effects"* on a copy of the original. If at any time you modify an object or group beyond recognition, just select ***Restore Object*** from the *Effects* menu, and Canvas will automatically restore the original object or group. Text objects benefit greatly from this option. If you find a mistake in a text object after doing a special effect, the ***Restore Object*** option will restore the original text from the bitmap and allow you to edit it using the ***Text*** tool.

About the Macro Menu



The *Macro* capability of Canvas is one of its most exciting features. You can use it to store any collection of objects or groups you use frequently. These collections of objects can be saved by category in their own separate files for later retrieval. The objects stored in a macro file, once installed, become an extension of the basic *Tool Palette*. Just as you select the *Rectangle* tool to draw a square, you could select a *"triangle macro"* to draw a triangle, or an *"pentagon macro"* to draw perfect pentagons of any size. The uses of object macros, *"MacrObjects,"* are endless. An Electrical Engineer, for example, might use Canvas *MacrObjects* to store different circuit elements like gates and resistors. Project Managers will use *MacrObjects* containing shadowed *Text* boxes to create or customize large flowcharts and organizational charts. *MacrObjects* are applicable to any field with equally useful results.

Every *MacrObject* file can contain up to 32 different macros. Since the *Macro* menu is hierarchical, to access an entry:

- press and hold the mouse button down as you select the *Macro* menu, then
- drag the mouse down the hierarchical list to select the desired *MacrObject*, then
- release the mouse button

You will now be able to draw this *MacrObject* like you would draw a rectangle:

- Click the mouse on the active drawing window
- drag the mouse to *"draw"* this new shape in the desired size (or simply click the mouse anywhere in the active drawing window without dragging to draw the macro using its original dimensions).

Add Macro ⌘M

The *Add Macro* (⌘-*M*) command allows you to add an object or group of objects to the *Macro* file currently installed. You can add up to 32 entries to any one *MacrObject* file. To add an object or group of objects to the current *Macro* menu: select the desired object or group by clicking on it with the mouse, then choose the *Add Macro* command from the *Macro* menu. Canvas will display a dialog box asking you to name the *MacrObject*. Click *OK* or press *Return* to save the new *MacrObject* and close the dialog.

USER TIP *USE SHORT NAMES WHEN POSSIBLE, THE WIDTH OF THE MENU DEPENDS ON THE LENGTH OF THE LARGEST NAME AND VERY WIDE MENUS DON'T LOOK GOOD.*

USER TIP *NOTICE THE SMALL GRAPHICAL REPRESENTATION OF THE SELECTED OBJECT(S). IT WILL BE USED TO REPRESENT THIS MACROBJECT IN THE MACRO MENU.*

Delete Macro

You can delete unwanted macro objects from the active *MacrObject* file using the *Delete Macro* command. However, this action can not be undone. To delete a *MacrObject*: select the *Macro* menu; then select the desired *MacrObject* to delete. Release the mouse button. Choose *Delete Macro* from the *Macro* menu. A dialog box will be displayed confirming that you want to delete the *MacrObject*. Click *OK* or press *Return* to delete the *MacrObject* and close the dialog or *Cancel* if you change your mind.

USER TIP *IT IS GOOD PRACTICE TO DRAW A MACRO OBJECT ON THE ACTIVE DRAWING BEFORE DELETING IT FROM THE MENU. IF YOU CHANGE YOUR MIND YOU CAN ALWAYS ADD IT AGAIN. THIS IS ALSO THE ONLY WAY TO CHANGE THE NAME OF AN ITEM.*

Load Set...

The *Load Set...* command is similar to the *Open* command from the *File* menu, but instead of opening whole documents, this command allows you to *"load"* (open) the contents of a *MacrObject* file into an active *Macro* menu. To *load* a new *MacrObject* file: choose the *Load Set...* command from the *Macro* menu. Canvas will display a standard file dialog which displays all *MacrObject* files present in the selected disk or folder. (*If you are unfamiliar with the use of the standard Open dialog box, refer to page 71 of the Canvas Upgrade Manual or your Macintosh Owners Manual*). Once you locate the new *MacrObject* file you want to *load*, click *OK* or press *Return*. The new *MacrObject* file will be installed in the *Macro* menu. This will now become the default *Macro* set for the active, topmost, document. A *checkmark* next to a *MacrObject* icon indicates that the macro is currently selected.

USER TIP *WHEN MULTIPLE ILLUSTRATIONS ARE OPEN AT THE SAME TIME, THE MACRO MENU DISPLAYS THE MACROBJECT FILE FOR THE ACTIVE, TOPMOST, WINDOW.*

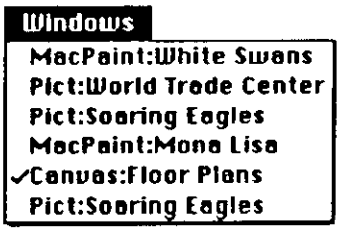
Save Set As...

To *save* the contents of a *MacrObject* file to a separate file: choose *Save Set As...* from the *Macro* menu. Canvas will display a standard *Save as...* dialog. This dialog allows you to name your *MacrObject* file and *save* it to any folder or disk. If you are not familiar with the use of the standard *Save as...* dialog box, refer to page 73 of the *Canvas User Guide* or your *Macintosh Owners Manual*).

Clear Set...

The *Clear Set...* command closes the active *MacrObject* file. Any *MacrObjects* which have not been *previously saved* will be lost when the *Clear Set...* command is executed.

About the Windows Menu



The *Windows* menu option in the *Canvas Menu Bar* facilitates movement between multiple open documents. Canvas is able to open as many illustrations as the memory capacity of your computer will allow. Using the *Windows* pull-down menu, you can switch between open illustrations with ease.

Every time you open a file in Canvas, that file is added to the list of documents in the *Windows* menu. The active (*topmost*) illustration will be annotated with a ✓ (*checkmark*).

To use the *Windows* menu:

- press down and hold the mouse button as you select the *Windows* menu option, then
- move the cursor down the *pop-up* hierarchical menu until your selection is highlighted, and
- release the mouse button. Canvas immediately moves your selection to the active (*topmost*) position on your screen.

You can also move between multiple window displays by *double clicking* on the *Title Bar* of the window you wish to view. Canvas will move it to the active (*topmost*) position on your screen.

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Error Code 26

Resource or driver not found. A vital part of the program did not copy correctly and could not be found. Re-install directly from your master disk and try again. If the missing part belongs to the System re-install your System file instead.

Error Code 33

Disk or disk directory full! Try saving your document to a different disk with more space available. Remember, if you close the document now without saving your work all changes will be permanently lost!

Error Code 34

Disk or disk directory full! Try saving your document to a different disk with more space available. Remember, if you close the document now without saving your work all changes will be permanently lost!

Error Code 36

Disk I/O error. Usually this error indicates some kind of hardware problem, either bad disk media (wear) or a defective disk drive.

Error Code 39

Logical end-of-file reached during a read operation. Something went wrong the last time this document was saved or the disk is defective (possibly wear).

Error Code 44

File locked. You can't write to a file that has been locked using the Finder's Get Info option, or to one that belongs to a locked disk, volume or folder.

Error Code 45

File locked. You can't write to a file that has been locked using the Finder's Get Info option, or to one that belongs to a locked disk, volume or folder.

Error Code 46

File locked. You can't write to a file that has been locked using the Finder's Get Info option, or to one that belongs to a locked disk, volume or folder.

Error Code 47

File busy. This file is currently being used by someone else on the network. Otherwise it has been left open as a result of a System Error (if this is the case restart your computer as soon as possible).

Error Code 49

File busy. This file is currently being used by someone else on the network. Otherwise it has been left open as a result of a System Error (if this is the case restart your computer as soon as possible).

Error Code 101

Wrong TIFF file version. Try re-saving the TIFF file with a newer version of your TIFF software.

Error Code 102

There is not enough memory to dither the TIFF object. Try holding down the Option key while opening the file.

Error Code 103

Canvas does not support the compression type for this TIFF file. Re-save it using no compression.

Error Code 104

Canvas only supports TIFF files which contain grey level images of 1, 4, 6, or 8 bits.

Error Code 105

There is not enough information in this TIFF file for Canvas to properly interpret the image. Try resaving it.

Error Code 108

You are out of memory! Try working with a smaller document, close all unnecessary open desk accessories or windows, reduce your disk cache (Control Panel), disable unnecessary INITs and print spoolers, or add memory.

Error Code 109

The Macintosh memory manager has encountered a rare but potentially dangerous error. Quit the application and restart your Macintosh as soon as possible.

APPENDIX A Error Code Messages

Error Code 111

The Macintosh memory manager has encountered a rare but potentially dangerous error. Quit the application and restart your Macintosh as soon as possible.

Error Code 112

The Macintosh memory manager has encountered a rare but potentially dangerous error. Quit the application and restart your Macintosh as soon as possible.

Error Code 192

Resource or driver not found. A vital part of the program did not copy correctly and could not be found. Re-install directly from your master disk and try again. If the missing part belongs to the System re-install your System file instead.

Error Code 193

Resource file not found. A needed file seems to be missing or can't be found. Double check your User Manual for proper installation instructions.

Error Code 200

Canvas has encountered a problem reading the program file. Re-copy Canvas from your original Master Disk.

Error Code 201

Most probable cause is that your Macintosh is out of memory. If you are importing a PICT file it is possible the file may be corrupted.

Error Code 4097

The connection with the printer was just closed. Check all connections to the printer.

Error Code 4099

Write request too big. The printer's memory capacity has been exceeded. Try reducing the size of any large bitmaps and try again.

Error Code 4100

The connection with the printer was just closed. Check all connections to the printer.

Error Code 4101

Printer not found or closed. Check all connections to the printer, re-select the printer using the Chooser desk accessory. If this fails, try restarting the printer.

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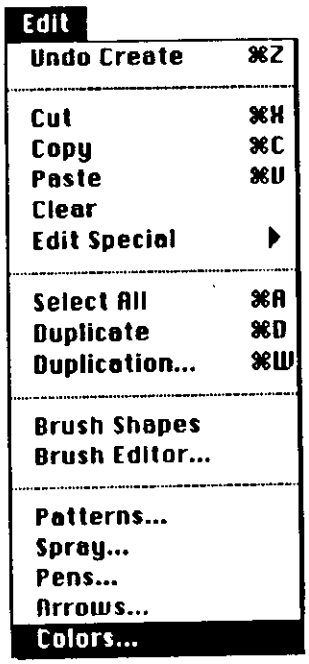
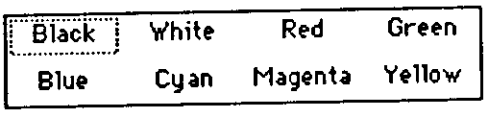
About The Canvas Colors

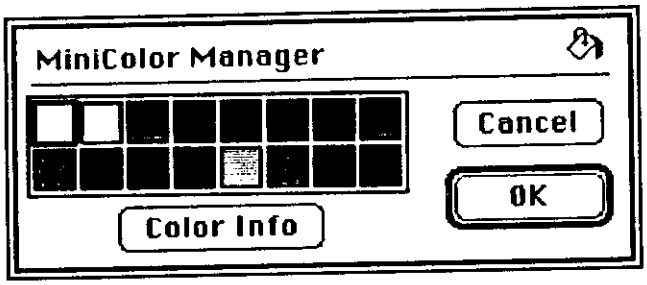


Canvas 2.0's color capabilities allow you to create any type of illustration, from black-and-white graphics to complex full-color illustrations. The configuration of *The Canvas Colors* depends on which Macintosh video system you are using. Canvas will automatically adjust the ***Background*** and ***Foreground Color Managers***, in the ***Tool Box***, to your video display.

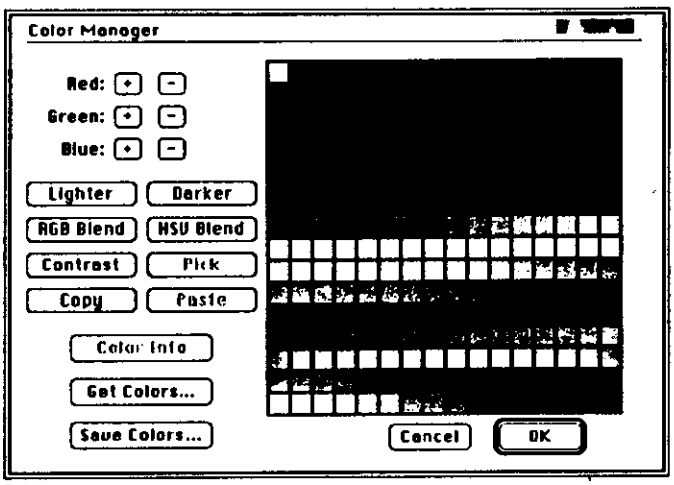
There are three configurations of video systems available on the Macintosh: if you have a Macintosh Plus, Macintosh SE or a Macintosh II (*2-bit color mode*), Canvas displays the standard 8-color palette. In this mode, the *Color Manager*, displayed by the ***Colors...*** command in the ***Edit*** menu is not available.



The second color configuration, is for a Macintosh II with the standard 16-color video card (*4-bit color mode*). In this configuration, Canvas will display the ***Colors...*** command in the ***Edit*** menu which , when selected, displays the *Mini Color Manager*.

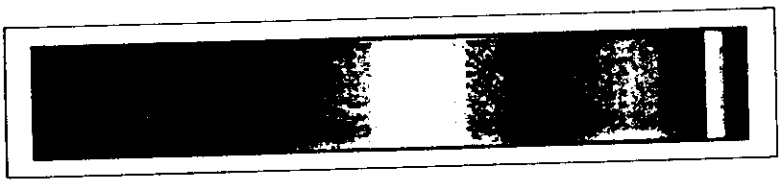


The third video configuration available in Canvas is for a Macintosh II with any 8 to 32 bit color card, like Apple's expanded color card (8-bit color modes) or any one of the newer 24-bit color cards. In this configuration, Canvas will also display the ***Colors...*** command in the ***Edit*** menu; however, when selected, it will display the *Color Manager*.



Using the Canvas *Color Manager*, you can select custom colors that you can apply to objects in the *Canvas Window*. On black-and-white screens, all colors show as black or white. However, a color screen displays the colors as they will look when reproduced on a color printer, like the *Tektronix 4693D*.

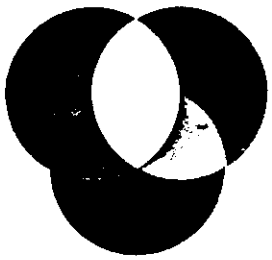
If you are using a color monitor with Canvas 2.0, you will want the appearance of your illustrations on your monitor to match the printed output as closely as possible. Because of the differences in monitors and factory settings, no two monitors are *exactly* the same. Canvas 2.0 gives your the power and flexibility to adjust the video display of your monitor from within Canvas, using the ***Colors...*** command in the ***Edit*** menu, without changing the internal settings of your monitor.



How closely you can match these colors to the video display depends on the number of colors you have chosen in the *Control Panel*, located in the menu. Canvas 2.0 will display color when the *Control Panel* is set for 16 or 256 colors. For best results, set your monitor's characteristics in the *Control Panel* to 256 colors if you have at least an 8-bit color card.

Understanding The Properties Of Color

In order to gain full use of Canvas 2.0's color capabilities, you should have a basic understanding of the properties of *light*, which creates colors. *Light* is either *transmitted* or *reflected*. *Transmitted light* is composed of three primary colors: red, green and blue (RGB). Combining any two of the primary colors produces the secondary colors: cyan, magenta, and yellow (CMY). Mixing red, green and blue as *transmitted light* is an additive process, where equal intensities of all three colors produce gray, and full intensities of all three colors create white.

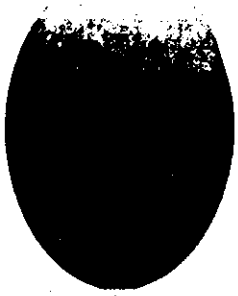


In contrast, *reflected light* is composed of three primary colors: cyan, magenta and yellow (CMY). Combining any two of these primary colors produces secondary colors: red, green and blue (RGB). Mixing cyan, magenta and

yellow as *reflected light* is a subtractive process, where white is the absence of all color (black).

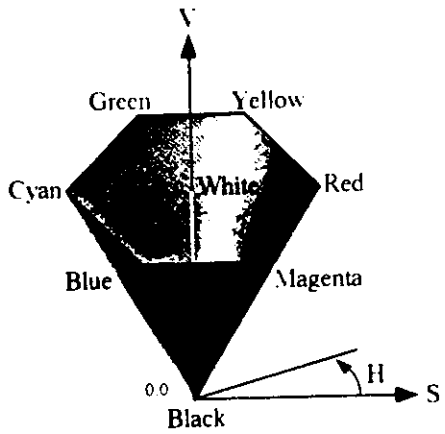
Simply stated, the primary colors of *transmitted light* are the secondary colors of *reflected light*. Conversely, the primary colors of *reflected light* are the secondary colors of *transmitted light*. The additive and subtractive color processes of *light's* properties form the basis for two of the five *color systems* that Canvas 2.0 uses to simulate colors on the screen: RGB (red, green, blue) uses the additive color process; CMY (cyan, magenta, yellow) uses the subtractive process.

A third *color system*, HSL (hue, saturation, lightness), is based on three color *properties, or* dimensions, in lieu of *light* or primary colors. *Hue* is the position, from 0 to 360 degrees, around the color wheel; *saturation* is the intensity of the color, or how much color is present or absent; *lightness* is the color's percentage of *black*, where 0 percent is black and 100 percent is white.



The fourth *color system* used by Canvas 2.0 and your Macintosh II is the HSV (hue, saturation, value) system, which is based on your intuitive appeal for *tint, shade* and *tone.*

The YIQ *color system* is designed to exploit the luminosity capabilities of the Macintosh II's video system, especially one with the *RasterOps* 24-bit video board. YIQ is more sensitive to changes in luminosity than to changes in hue or saturation. By specifying colors in the YIQ *color system,* two colors that look quite different to our eye may look exactly the same when viewed as a black-and-white illustration. This can be avoided by guaranteeing that two colors that are meant to be distinguished from one another (such as a filled object and its border) have different luminances, so they are displayed at different intensities.



Canvas lets you use any one of the pre-defined color palettes that were included with the program, or you can use one of the five *color systems* to mix additional custom colors for your background/foreground color palette. You can apply color to any Canvas object: lines, fills, text, etc. The number of colors you use depends on the effect you want.

Using The Color Manager

Red: Green: Blue: +/-
Adds or subtracts red, green or blue color properties from the highlighted color

Lighter
Reduces the color saturation level in the selected color

Darker
Increases the color saturation level in the selected color

RGB Blend
Blends shades of only the two selected colors, across the color wheel

HSV Blend
Blends shades of all colors between two selected colors, around the color wheel

Contrast
Changes the selected color to the color positioned directly opposite it on the color wheel

Pick
Displays the Canvas Color Picker dialog

Copy
Copies the selected color for pasting into another palette

Paste
Pastes a copied color icon into a palette

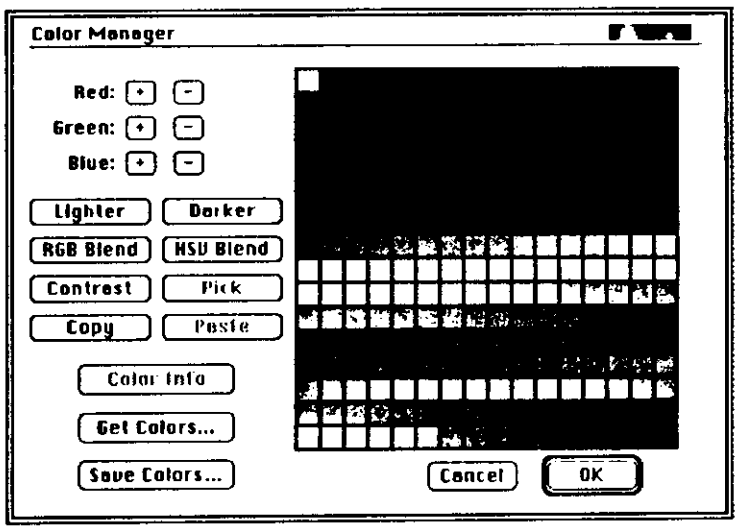
Color Info
Displays the Canvas Color Infor dialog

Get Colors...
Displays the standard Open dialog for locating and opening a Canvas Color Palette file

Save Colors...
Displays the standard Save As... dialog for naming and saving a custom Canvas Color Palette file

Canvas automatically provides color support up to the maximum capability of your Macintosh. If you are using Canvas with a black and white computer, the program displays the standard 8-color menu for the foreground and background colors.

If Canvas is used on a Macintosh II, with the *Monitor* selection of the *Control Panel* desk accessory in the menu set to 256 colors, the program automatically adjusts its color support for 16.7 million colors. The ***Colors...*** command is visible in the ***Edit*** menu. Selecting ***Colors...*** will display the Canvas *Color Manager:*



You can use the *Color Manager* in a variety of ways: to work with a single color in the current *Color Palette;* to work with multiple colors in the current *Color Palette;* or, to change *Color Palettes* with the *Get Colors...* button.

Changing Colors

To use the *Color Manager* on a single color:

- **Select a color by clicking the mouse on one of the color icons.** The *border* around the color icon will highlight to indicate that the color is selected.

- With a *single* color selected you can:
  - Modify the color by adding or subtracting *RGB values*. Click on the "+" or "-" buttons adjacent to *Red:, Green:* or *Blue:,* to perform the respective modification.
  - Click on the *Lighter* or *Darker* buttons to modify the *intensity* of the selected color.
  - Click on the *Contrast* button to replace the selected color with the color located directly opposite it on the color wheel.
  - Click on the *Copy* button to add the selected color to another location in the current *Color Palette* (using the *Paste* button); or, using the *Get Colors...* button, add it to a different *Color Palette.*

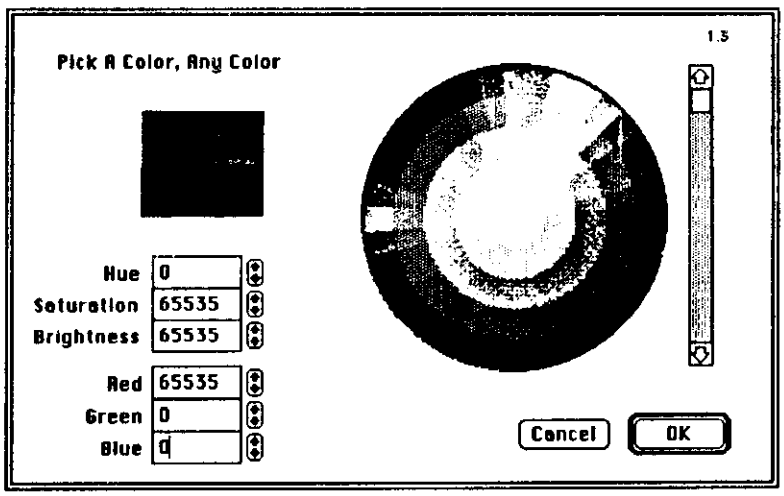
Blending Multiple Colors

You can select multiple colors in *Color Manager* which can be simultaneously modified:

- Click on the first color. The border will highlight.
- Drag the mouse across the *Color Palette* to the last color, in your group of colors, that you wish to modify. All the borders around the color icons between the first and last colors selected will highlight, indicating that they are selected.
- With *multiple* colors selected you can:
  - Simultaneously modify all of the colors by adding or subtracting *RGB values.* Click on the "+" or "-" buttons adjacent to *Red:, Green:* or *Blue:,* to perform the respective modification.
  - Click on the *Lighter* or *Darker* buttons to modify the *intensity* of the selected colors.
  - Click on the *Contrast* button to replace the selected colors with the colors located directly opposite them on the color wheel.

- Click on the *Copy* button to add the selected colors to another location in the current *Color Palette* (using the *Paste* button); or, using the *Get Colors...* button, add them to a different *Color Palette.*
- Click on the *RGB Blend* button to simultaneously change the selected colors to *shades* of the first and last colors selected *across* the color wheel.
- Click on the *HSV Blend* button to simultaneously change the selected colors to *shades* of the first and last colors selected *around* the color wheel.

If you click on the *Pick* button, Canvas will display the Canvas *Color Picker* dialog, which contains the *Color Wheel.*



Color Wheel
Select a color from 16.7 million available

Scroll Bar
Control the color brightness

"Red " Window - Top
New highlight color you select from the Color Wheel

"Blue" Window - Bottom
Current highlight color selected in the Color Wheel

Hue
Type a value from "0" to "65535" or use the arrows to change the selected color's position on the Color Wheel

Saturation
Type a value from "0" to "65535" or use the arrows to change the selected color's intensity of color on the Color Wheel

Brightness
Type a value from "0" to "65535" or use the arrows to change the selected color's percentage of black on the Color Wheel

Red
Type a value from "0" to "65535" or use the arrows to change the amount of "red" in the selected color on the Color Wheel

Green
Type a value from "0" to "65535" or use the arrows to change the amount of "green" in the selected color on the Color Wheel

Blue
Type a value from "0" to "65535" or use the arrows to change the amount of "blue" in the selected color on the Color Wheel

Using the Color Picker Dialog

Clicking on the *Color Wheel* or dragging the cursor around the wheel is the simplest means of selecting a new highlight color. When you do this, the color appears in the top half of the small display box, in the upper-left-hand corner of the *Color Picker* window. The bottom half of the display box continues to show the currently selected color.

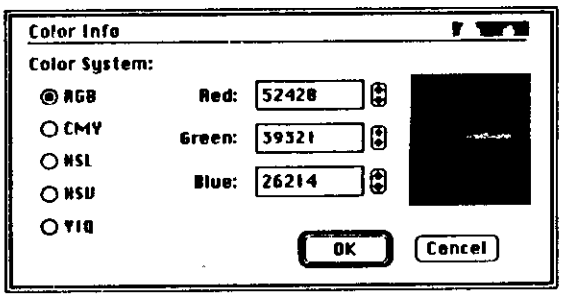
The colors at the outer edge of the *Color Wheel* are the purest in *hue*. As you move toward the center of the wheel, you increase the amount of *white* color that is added to the pure *hue (saturation)*. If you want to tone down the *brightness* of the colors, use the scroll bar to the right of the *Color Wheel*. Moving the scroll bar down makes the color darker; moving it up makes the color lighter. In the lower-left corner of the *Color Window* are two sets of three boxes. Each set show the numerical representation of the selected color in the *Color Wheel*. You can use either set to enter a color choice by typing numbers.

To summarize, you can adjust the selected color in the *Color Wheel* in the following ways:

- **Move the white color-adjustment dot that appears inside the *Color Wheel*.** This changes the *hue* and *saturation*. It does not affect the selected color's brightness.
- **Click on the arrows or move the box in the scroll bar to the right of the *Color Wheel*.** This changes the selected color's brightness. It does not affect *hue* or *saturation*.
- **Click on the arrows next to the *Hue, Saturation* and *Brightness* windows or the *red, Green* and *Blue* color windows, or enter specific values between 0 and 65535 in these windows.**
- **Click the *OK* button when you are satisfied with your color.**

Using the Color Info Dialog

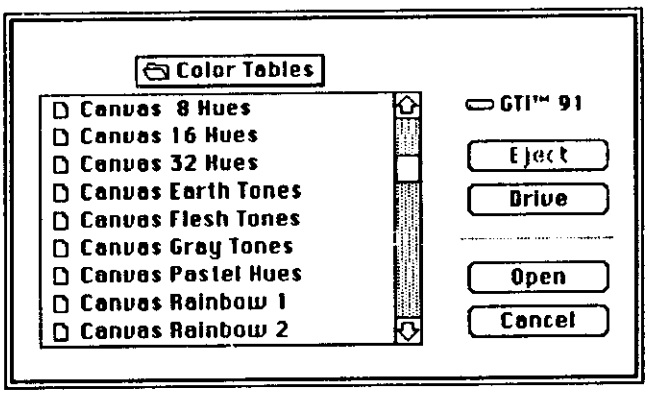
Click on the *Color Info* button of the *Color Manager* to display the *Color Info* dialog *(shown on top of the next page)*. From this dialog, you select one of the five *color systems* Canvas 2.0 uses to process colors in your illustration.



- **Click on one of the five *Color System:* check boxes.**
- **Click on the arrows next to the *Red, Green* and *Blue* windows, or type specific values between 0 and 65535 in these windows.** Like the *Color Picker* dialog, when you do this, the color appears in the top half of the display box, to the right of the arrows. The bottom half of the display box continues to show the currently selected color.
- **Click the *OK* button or press the *Return* key to accept your selection.**

Changing Color Palettes

You can change *Color Palettes* by selecting the *Get Colors...* button in the *Color Manager* dialog. Clicking on this button will display a standard *Open* dialog for locating and opening Canvas *Color Palette* files:



Saving Color Palettes

Use the *Save Colors...* button to create new or modify existing *Color Palette* files. Clicking on this button will display the standard *Save as...* dialog for naming and saving a new or modified *Color Palette* file.